Report of the Shoreline Management Review Committee

Report to the

Minister of Natural Resources

Minister of Municipal Affairs

October 1986

Ontario

Shoreline Management Review Committee

Chairman

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1986 October 31

Ministry of Natural Resources
Room 6323
Whitney Block, Queen's Park
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Attention: Honourable Vincent G. Kerrio
Minister of Natural Resources

Ministry of Municipal Affairs
17th Floor
777 Bay Street
Toronto, Ontario
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Attention: Honourable Bernard Grandmaître
Minister of Municipal Affairs

Dear Ministers:

We, the Members of the Shoreline Management Review Committee are pleased to submit the report of our review. We initiated this review in accordance with the Order in Council, dated April 17, 1986, which established our Committee and specified its Terms of Reference.

James McGuigan, M.P.P.
Chairman

Gordon Miller, M.P.P.

Shannon Olson

Ray Lavereau

John Plyley

Roger Vermeulen

Reid Kreutzwiser

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MEMBERS OF THE

SHORELINE MANAGEMENT REVIEW COMMITTEE

Chairman

James McGuigan, M.P.P.
Kent - Elgin

Members

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ACKNOWLEDGEMENTS

Your Committee would like to express its appreciation for the time and effort of all of those who contributed to this review by way of background information, discussions, and site data provided during our field reconnaissance of the shoreline.

We would particularly like to acknowledge the help of Mr. Ron Gable, Executive Assistant to Mr. McGuigan; and Mr. Guirish Sardesai, of the Conservation Authorities and Water Management Branch. Both devoted a great deal of their personal time to ensuring the success of our review - Mr. Gable, as media contact, and through his constant support during all phases of the review, and Mr. Sardesai, for organizing the public meetings and providing considerable background information.

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SUMMARY OF RECOMMENDATIONS

Your Committee has made a number of recommendations and suggestions, found throughout the body of this review, which were initially voiced by the public at our meetings. As a result, we feel that the information and recommendations contained in this report would be of great public interest, and we request that our review be released for public consumption. The following is a summary of our principal recommendations, grouped under four broad categories: prevention, protection, emergency measures, and funding.

PREVENTION

Land Use Planning

Your Committee recommends that the Ministry of Natural Resources join with the Ministry of Municipal Affairs and other interested Ministries, to prepare a Policy Statement under the Planning Act to formally recognize Great Lakes shoreline management in municipal land use planning, and to reflect the Province's significant interest in this diverse and valuable resource.

Shoreline Management Council

Your Committee recommends that the Province establish forthwith an independent body called the Shoreline Management Council, appointed by the Minister of Natural Resources and reporting directly to him. The Council will regularly solicit public opinion about shoreline management issues, will have a major involvement in the initial development of shoreline management planning, and will submit an annual report to the Minister for public distribution.

Lead Provincial Agency

Your Committee recommends that the Ministry of Natural Resources be identified as the lead agency for shoreline management, and that the Ministry

establish a plan and guidelines for long-term management of the shoreline, and co-ordinate the involvement of all other Provincial agencies serving the shoreline.

Your Committee recommends that the Ministry of Natural Resources establish a Great Lakes unit within the Ministry, and ensure that sufficient in-house expertise is available to support the implementing agency in its execution of shoreline management planning.

Shoreline Management Plan

Your Committee recommends that the Ministry of Natural Resources prepare a Shoreline Management plan to assist in consistent application of shoreline management policies. The Plan will identify regulatory flood and erosion criteria to define the extent of hazard lands for regulatory purposes, will define the boundaries of shoreline management units, and will identify shoreline areas where preventive actions are the most viable strategy deserving funding.

Conservation Authorities Act

Your Committee recommends that the Conservation Authorities Act be amended, if required, to extend the jurisdictional and geographical boundaries of shoreline Conservation Authorities to include both shoreline and nearshore areas of the Great Lakes.

Implementing Agency

Your Committee recommends that the Conservation Authorities, and the Ministry of Natural Resources where there are none, be identified as the agency to implement the Shoreline Management Plan, and to administer the shoreline policies of the Ministry of Natural Resources.

Conservation Authorities Act and Regulations

Your Committee recommends that the Minister of Natural Resources require the Conservation Authorities which border the Great Lakes to enact regulations under Section 28 of the Conservation Authorities Act. These regulations will allow the Authorities to prohibit or regulate construction of dwellings and structures and the placing of fill in shoreline flood and erosion hazard areas.

Ministry of Natural Resources Legislation

Your Committee recommends that legislation administered by the Ministry of Natural Resources be amended to provide the Ministry with the same powers as a Conservation Authority in regulating fill and construction activities in flood/erosion susceptible areas.

Flood Damage Reduction Program

Your Committee recommends that the Ministry of Natural Resources discuss with the Federal Government the need to expand the Canada-Ontario Flood Damage Reduction Program to accelerate hazard land mapping and to prepare studies geared to shoreline damage prevention.

Water Levels

Your Committee strongly endorses the new International Joint Commission Reference into methods to alleviate the adverse effects of fluctuating lake levels, and recommends that the Province offer its full co-operation to the Federal Government so that the Reference can be completed within the specified time-frame.

PROTECTION

Major Works

Your Committee recommends that the Ministry of Natural Resources support implementation of large-scale, protective works along sections of the shoreline, with the provision that these projects be evaluated and ranked on a priority basis, and that they be funded in a way identical to ongoing capital works programs for damage reduction in the riverine environment.

Approvals Process

Your Committee recommends that the Ministry of Natural Resources with other Ministries, develop a streamlined approvals process for shore protection works initiated by individual landowners, and that the Province approach the Federal Government to join in this approvals process - with the implementing agency (the Conservation Authorities) being the focal point for the distribution of approvals applications.

Shoreline Property Assistance Act

Your Committee recommends that the Ministry of Natural Resources work with the Ministry of Municipal Affairs to make amendments to the Shoreline Property Assistance Act - to strengthen the inspection and approvals process in the Act, to ensure that all shoreline works receive technical review and approval before public funding, to increase funding provisions under the Act, and to provide loan guarantees.

Shore Protection Guidelines and Research

Your Committee recommends that the Ministry of Natural Resources develop and disseminate technical guidelines for the design of protection works, and initiate research and development into cost-effective and innovative approaches for shore protection.

Technical Advice

Your Committee recommends that the Conservation Authorities provide technical information, advice and approvals for shore protection works, and join with their member municipalities along the shoreline in evaluating applications for funding under the Shoreline Property Assistance Act.

Basic and Incentive Grants

Your Committee recommends that the Ministry of Natural Resources provide grants, through the Conservation Authorities, for shore protection works - basic grants to all individuals and municipalities whose works are approved, and additional grants to those undertaking non-structural damage prevention in certain hazard areas identified in the Shoreline Management Plan.

EMERGENCY MEASURES

Lead Ministry

Your Committee recommends that the Ministry of Natural Resources continue to be identified as the lead Ministry in the provision of emergency assistance during and after severe events.

Emergency Planning

Your Committee recommends that the Ministry of Municipal Affairs require all shoreline municipalities to develop shoreline emergency plans under the Emergency Plans Act.

FUNDING

Dedicated Funding

Your Committee recommends that the Ministry of Natural Resources approach the Province for new funding, in an amount which is comparable to that which is now provided for watershed management, to be dedicated to shoreline flood and erosion damage prevention and protection.

Federal Government

Your Committee recommends that the Ministry of Natural Resources approach the Federal Government, which is the recognized senior level of government having jurisdiction with respect to the level of the water in the Great Lakes, to obtain funding for projects involving non-structural damage prevention activity, as well as projects involving structural works.

Funding Priorities

Your Committee recommends that the Ministry of Natural Resources develop a uniform priority ranking procedure, to allow all shoreline projects to be assessed on their merits in a consistent and equitable manner.

1.0 SHORELINE MANAGEMENT REVIEW

1.1 Introduction

The shoreline of the Great lakes in Ontario is recognized as a unique and valuable resource. It provides recreational opportunities for bathers, boaters, and recreational fishermen. It is the habitat for rare and endangered species, and is a spawning ground for the commercial fishery. Equally significant, in terms of our mandate, is that the shoreline has been a preferred site for residential, recreational, and agricultural growth in Ontario.

Much of the shoreline is high and rocky, or otherwise relatively immune to wave attack and flooding. Ironically, the shoreline areas which are dynamic, erodible, and/or prone to periodic flooding, have been the preferred sites for development.

Storms in the spring and fall of 1985 brought the inherent problems of this situation into focus once again. Flood damage and erosion problems were reported in all parts of the lakes, and there was great concern for the future. During this period, monthly water levels in most of the Great Lakes rose to exceed previously recorded highs, and it was projected that the trend would continue into 1986.

As a result of the problems of 1985, the Cabinet of Ontario approved a number of short-term initiatives to assist private landowners and local public agencies. At the same time, it was recognized that the situation in 1985 was not unique, and that similar shoreline problems had occurred periodically in the past, and could be expected to occur from time to time in the future. As a result, your Offices took a progressive step, and looked to find long-term solutions by initiating the establishment of this Committee. In short, the Shoreline Management Review Committee was requested to hold public meetings and seek input on the issue of a long-term

approach to the management of shoreline areas on the Great Lakes in Ontario, and report to the Ministers of Natural Resources and Municipal Affairs.

1.2 Historical Perspective - Water Levels

Responsibility for managing the Great Lakes system and international waterways rests not with the Province, but with the Federal Government. However, as Ontario's jurisdiction over the shoreline meshes with Federal jurisdiction at the water's edge, it is appropriate that the following review of lake level fluctuations be used to provide a background to the necessity for long-term shoreline management.

The recorded history of water levels on the Great Lakes is relatively long in terms of most hydrometric records. Some lake level records are available from the early 1800's, but continuous and relatively reliable data were not taken until about 1860. A brief overview of this data is quite revealing. Since the turn of the century, there have been five high water periods:

- 1985 - 1986
- 1972 - 1975
- 1952
- 1928 - 1930
- 1916 - 1917

Drawing on earlier records (from the 1800's) we find there were periods on the upper lakes, when lake levels exceeded even today's highs:

- on Lake Superior (1869, 1876)
- on Lake Huron (1876, 1886)

and periods on the lower lakes, when water levels approached today's records:

- on Lake Erie (1860-62, 1876, 1886)
- on Lake Ontario (1862-63, 1870)

Overall, there have been roughly seven periods of high water in each of the Great Lakes since 1860. Recent research on Lake Michigan/Huron suggests that prior to this relatively short 126 years of modern record keeping, there were levels which significantly exceeded today's highs. These occurred on three occasions in the past 1500 years - the most recent being about 400 years ago. This and other research indicates that these high water levels coincided with moist and cool climatic intervals.

Periods of lower water levels are also evident from the records. In the late-1920's, most of the 1930's and 1940's, and the mid-1950's to mid-1960's water levels were below average on all of the lakes. Regrettably, these recent periods of low water coincided with considerable shoreline development in the Province. As a result, many of those who purchased shoreline properties at that time consider the unusually low levels, and the beach extent which accompanied these levels, to be "normal".

Efforts to provide some stability in lake levels coincided with hydroelectric and navigation developments on the St. Lawrence and St. Marys Rivers. The Committee visited each of these sites and studied their operations. In each case, a desired range of lake levels has been established to benefit all users of the regulated lake, including the riparian owners. All seem to be satisfied by these measures during what they consider to be times of more or less "typical" conditions.

There are, however, two constraints on what can be accomplished by these "control" structures. Firstly, these works cannot be operated as if they were independent facilities entirely outside of the Great Lakes system. Operations at Sault Ste. Marie and Cornwall must consider downstream water levels as well as the respective conditions in Lake Superior and Lake Ontario. When it is required to alleviate flood problems, flows are

increased; and in drought conditions, they are decreased. It must be appreciated, however, that it takes many months for these "control" structures to effect changes in lake levels, and these changes are measured in inches or fractions of inches.

Secondly, other, larger constraints are imposed both by the random variability in the amounts of rainfall/runoff which enter the lakes, and by the direction and intensity of winds. In the first instance, an area of about 300,000 mi^2 (775,000 km^2) drains into the lakes, and when rainfall is consistent and heavy, lake levels rise. This phenomenon has been most remarkable during 1985-1986, but in seventeen of the last twenty-two years there have been rising water levels within the entire Great Lakes System. At the present time, when all of the lakes are full and establishing new water level records; when all of the connecting channels (e.g. the Niagara River) are setting new discharge records; and when all of the regulatory structures are being operated at an optimum - there is nothing more that can be accomplished with these structures to lower water levels.

In the second instance, the driving force of winds can increase down-wind lake levels by up to 8 feet in a matter of hours. This rapid and uncontrollable rise must be compared to both the 1 to 4 inch reduction caused by diversion of water into and out of the lakes, and to the maximum "control" exerted by regulatory structures. On all but Lake Ontario, regulatory structures have effected lake level reductions of between 8 inches (on Lake Superior) and 3 inches (on Lake Erie). A maximum water level reduction of 2 feet (0.6 m) has been achieved on Lake Ontario in some years (e.g. 1985), although we have heard that many shoreline owners are still having problems and are not happy with this improvement in lake levels.

These findings are taken from the conclusions of rigorous studies undertaken by the International Joint Commission. This Commission, established under the Boundary Waters Treaty of 1909, supervises lake level regulation and other matters concerning waters on and flowing across the Canada-United

States border. It also undertakes investigations requested by either or both governments.

In 1964, the Commission was requested by the Governments of Canada and the United States to determine if further regulation of water levels would be in the public interest of both nations. This study concluded in 1974 after examining new and modified regulatory structures on the connecting channels of all of the lakes.

It was the finding of the Commission that short-term fluctuations (e.g. 8 foot rise caused by meteorological disturbances) cannot be reduced by such works, and that there were few, if any, options to further reduce the long-term variation in levels on the Great Lakes.

Certain options pertaining to limited regulation of Lake Erie appeared somewhat promising, and were evaluated in more detail between 1977 and 1983. Based on studies, public hearings, and supplementary information, the Commission concluded that limited regulation could achieve lower levels and some reduction in flood erosion damages on Lake Erie and the upper Great Lakes. However, the economic benefits would be offset by: losses to recreational boating, navigation and hydro-electric interests; increases in the frequency of high outflows into downstream areas; the need for downstream channel enlargements; and adverse impacts on water quality. At the time of that study, the cost associated with these disadvantages far outweighed the benefits. As in previous detailed studies, it was the overall conclusion that regulation of lake levels through existing controls and diversions would not eliminate flood and erosion damage caused by natural variations in lake levels.

However, the story of lake level regulation is not over, and there may be changes in regulation policy and/or new structures on the lakes as a result of a recently-initiated International Joint Commission study. This study will include new data, and may result in improvements in water management

and in the reduction of water levels during high water periods - changes which would be much appreciated by the shoreline residents.

In the near and long-term future, however, it must be emphasized that flood and erosion protection cannot be achieved by regulation alone. Even with regulatory "controls", lake levels will again be high (or low) in the future. There will be storms and more storm damage unless preventive and protective measures are put in place through a comprehensive shoreline management plan.

1.3 Historical Perspective - Shoreline Management

The report of the Select Committee of the Ontario Legislature on Lake Levels of the Great Lakes (1953) provides a summary of some of the studies and developments in shoreline management in Ontario. The report reveals that concern about shoreline erosion and inundation is not recent, and was examined in studies as early as the mid-1800's. Since then, some other actions included: a study of erosion and sedimentation at Point Pelee in 1918; shoreline works in the 1920's to protect a portion of the Toronto waterfront; and important studies of the geology and shoreline soils of Lake Ontario and Lake Erie in the 1930's.

The Niagara - Toronto Lakeshore Protective Association, formed in 1945, first brought the problems of lakeshore erosion to public attention through a conference held in 1948. The Association expanded at that time to form the Ontario Shore and Beach Preservation Association. Its membership included all municipalities in the Province affected by shore erosion.

Following damaging storms in the winter and spring of 1952, the Select Committee was formed to examine water level variations, the effect of levels on erosion, and various means to cope with shore-related problems. The Select Committee provided several recommendations on the topic of shoreline management, including:

- zoning of shoreline flood and erosion areas as unsuitable for development until protective works are installed

- acquisition of hazard lands for park, recreational or protective purposes by municipalities and/or Conservation Authorities

- preparation and publication of information related to shorelines and shore protection

Not long before the high water period of 1952, the Ontario Legislature passed the Conservation Authorities Act and the Planning Act. The Conservation Authorities Act (1946) allowed municipalities to join into a corporate body for effecting conservation measures. In the period between 1954 and 1963, the Authorities began to initiate flood plain mapping and became closely identified with the public safety aspects of hazard lands management. They were gradually given the power to enact regulations concerning the placing of fill, and to regulate the construction of buildings or structures in flood-prone areas. Although the Conservation Authorities began to enact regulations addressing riverine hazards, it appears that shoreline responsibilities were never clearly defined and that hazard management was largely neglected along the shore.

The Planning Act (1946) was designed in part to complement the conservation legislation. Under this Act, authority was given to municipalities to zone and regulate the development of municipal lands, and prohibit the use of land in certain areas. However, the Select Committee of the Legislature observed (in 1952) that building in flood-prone shoreline areas was going on in many sections of the Great Lakes. They felt that municipal responsibilities needed to be broadened, to ensure that the development of lands subject to erosion and inundation would be restricted or prohibited. In subsequent years, restricted area by-laws and hazard land policies began to emerge in municipal Official Plans. Now, zoning by-laws may be passed by shoreline municipalities to restrict the use of land or the erection of structures on flood or erosion-prone areas along the shore.

The period of high water levels in 1972 and 1973 re-emphasized the need for such planning and land use regulations. At that time, about $20 million in flood and erosion damages were reported along the shoreline of Ontario ($80 million in 1985 dollars). This event spawned a series of activities which appeared to be paving the way toward a serious commitment to shoreline management.

In May 1973, the province passed the Shoreline Property Assistance Act to assist private landowners in establishing protection at their shoreline properties. To date, approximately $10 million in subsidized loans have been provided to landowners through their municipalities.

At the same time, the Ontario Ministry of Natural Resources and Environment Canada entered into an agreement to survey the nature and extent of the shoreline damage, and make recommendations on shoreline management and planning. Aerial photography of the shoreline of the lower lakes was obtained in 1973 and data acquisition was completed in the summer of 1974. The Canada-Ontario Great Lakes Shore Damage Survey completed its technical report in late 1975, and produced an accompanying Coastal Zone Atlas in early 1976. It is noted in the Technical Report that the Atlas is "... intended to serve as a data base for future planning and management of the Canadian shoreline of the Great Lakes". The first two recommendations of the report stated that:

- further development and land use should be regulated in defined shoreline erosion and flood-prone lands

- coastal zone management policies should be developed and should include: hazard land policies for incorporation into official plans, a land acquisition policy, and a general coastal zone management policy

Other recommendations discussed the need for: site specific studies to develop methodologies for evaluating shoreline management alternatives;

tools to optimize management strategies; public awareness programs; and monitoring and research.

Shortly after this report was published, Fisheries and Environment Canada and the Ontario Ministry of Natural Resources established a Co-ordinating Task Force with responsibility for directing a follow-up program to address the above recommendations.

Mapping of flood and erosion prone areas was quickly prepared in 1978 and was distributed with a Users Guide to municipalities, Conservation Authorities and planning agencies. Public awareness was augmented by the publication and distribution of brochures, booklets and guides. These included a joint Canada-Ontario brochure entitled, "Coping with the Great Lakes" (1978), and a booklet entitled, "Shore Property Hazards" (1979). The latter described shore processes, gave a check list of factors which would indicate potential hazards to possible buyers, and provided information on protection and Federal-Provincial programs.

Other publications funded by Environment Canada at about this time described the role of vegetation in shoreline management, provided background information about water level variability, and presented monthly water level bulletins. These and other information were widely distributed and actively promoted in the Province by the Ministry of Natural Resources and the Conservation Authorities.

In March 1978, the Province and Federal Government joined in the Canada-Ontario Flood Damage Reduction Program Agreement. The program provided a foundation for long-term co-operative actions by the governments; that is, the preparing of flood risk mapping, and the financing of measures for reducing the potential for flood damage in Ontario. To date, the program has been widely used to identify the limits of flood prone areas along rivers, and has been of great value in implementing flood plain management. However, there seems to have been little support for using the program to

advantage along the shoreline. Certain Conservation Authorities have initiated or completed shoreline mapping, but only 3% of the average annual budget has been expended on shoreline areas.

It appears from an historical perspective that the Federal-Provincial impetus on the shoreline began to lose headway at about this time. Although the stage was set for implementing shoreline management planning at the Provincial and Municipal levels, water levels had dropped and the economic climate had deteriorated. Adequate funding for shoreline management was not provided, and the municipalities and Provincial agencies were not given the required signal to include shoreline management principals in their planning/regulatory policies.

Additional work carried on, however, to pursue the recommendations of the 1975 Canada-Ontario Great Lakes Shoreline Damage Survey. Monitoring and assessment of shore erosion continued at 162 sites between Kingston and Port Severn. Funding for this work was withdrawn by Environment Canada in 1981, and the Ministry of Natural Resources and the Department of Fisheries and Oceans extended this program on a smaller scale into 1982.

In October 1981, the Canada-Ontario Great Lakes Shoreline Management Guide was published and it provided a wealth of information and recommendations to aid in developing shoreline management plans. This document, its appendices, and an accompanying publication on shore process and protection, completed the information which would have enabled the development and implementation of comprehensive shoreline management policies by the Province, the Conservation Authorities and the municipalities.

All of these investigations relating to shoreline management were paralleled by several studies undertaken by the International Joint Commission. The first study was largely motivated by extreme low water levels in the mid-1960's and the investigation was carried out from 1964 to 1974. It was noted earlier that the Commission came to the conclusion that protection

from erosion, flooding and low water levels cannot be accomplished by lake regulation alone. Only comprehensive management using careful land use planning in combination with regulation would serve to protect present and future activities along the shore.

The Commission also suggested a further detailed study, to determine if limited regulation of Lake Erie would be in the public interest of both countries. This study was principally a response to the 1972-73 high water levels, and was carried out between 1977 and 1983. As noted earlier, the Commission concluded at that time that limited regulation would bring about some reduction in flood and erosion damages, but that there would be adverse effects to the environment and to a number of shoreline users. They recommended that further studies into the limited regulation of Lake Erie be abandoned and that:

- senior governments take steps to improve coastal zone management practices in order to reduce flood and erosion damage

- public information programs be augmented to bring about a better understanding of the factors which cause the natural fluctuations in the lake levels.

Some of the latter were already undertaken by the Province and the Federal Government in the late-1970's, but the last steps in improving coastal zone management practices appear to have ended in the early 1980's.

In the spring and late fall of 1985, high water levels combined with storm conditions and caused many millions of dollars in damage along the shoreline. Early estimates suggest that there were about $30 million in damages, but there may be tens of millions more when the final figures are compiled. Detailed studies carried out by bodies such as the Regional Municipality of Haldimand-Norfolk and the Township of Wainfleet have indicated very substantial damages.

These storms and continued high water levels prompted a round of activity which was similar to that which followed the 1972-73 events. The Federal Government established the Great Lakes Water Level Communication Centre in Burlington, where information on water levels and related Federal programs can be obtained. They also began to provide high water warnings on the lower lakes through a toll free number, and prepared and distributed a new information brochure on "Great Lakes Water Levels". Certain areas of shoreline were also flown over and photographed for future damage analysis.

The Province reactivated the Shoreline Property Assistance Act and began to distribute a booklet and a report on shore protection methods. Free sandbags were also distributed to municipalities by the Ministry of Natural Resources to assist landowners in protecting their property. The Ministry of Natural Resources also initiated a program of free technical advice to these landowners. Provincial agencies also began to upgrade their forecasting capabilities to begin to include reports of lake conditions.

1.4 Shoreline Management Review Committee

The Province recognized that the high water problems of 1985 might well extend into 1986, and could occur again in the more distant future. As a result, the Ministers of Natural Resources and Municipal Affairs approved the formation of the Shoreline Management Review Committee, and the Committee was formally constituted by Order in Council on 17 April 1986. The Committee was requested to hold public meetings and seek input on the issue of a long-term approach to the management of the Great Lakes shoreline in Ontario.

The purpose of this initiative was to establish an overall framework for addressing shoreline management issues; to identify mechanisms which are already available; and to define the roles and responsibilities of various levels of government, the private sector and individual landowners. The Committee was asked to make recommendations, based on public input, on the following three principal components of such a program:

- Preventive - minimizing the creation of new problems
- Remedial - rectifying existing problems
- Emergency - responding to emergency situations, both during and immediately after the event.

The full Terms of Reference are provided in Table 1.1.

Your Committee recognized from its review that shoreline management issues have become intertwined with water management issues. In order to clarify the distinction between the two, and augment our own knowledge, your Committee began its investigations by consulting with recognized experts in the fields of climatology, lake regulation, power, navigation, littoral processes, and shore protection. We also called upon people from the private sector and all levels of government to summarize and clarify: existing and proposed legislation; funding procedures and jurisdictional roles; the results of various reports and studies undertaken over the last 30 years; and shoreline practices and proposals. Your Committee also examined all of the regulatory works and diversions on the Great Lakes system, and questioned the operators and administrators at each site.

Lastly and most importantly, we visited many of the damage-prone areas on the lakeshore to gain a first-hand appreciation of local problems. Our investigations took us from Thunder Bay to the St. Lawrence River, and we saw many of the identified erosion-prone areas and most of the flood-prone areas on the Great Lakes shoreline.

The following chapter summarizes the public meetings and some of our comments and recommendations on points which were brought to our attention in those meetings. The final chapters provide a detailed outline of our recommended shoreline management program and the conclusions of our review.

TABLE 1.1

TERMS OF REFERENCE

SHORELINE MANAGEMENT REVIEW COMMITTEE

The terms of reference of the Committee were as follows:

1. Hold twelve (12) public meetings to receive submissions from individuals, groups, municipalities, public agencies and other organizations on the issue of shoreline management on the Great Lakes in Ontario.

2. Review, summarize and evaluate opinions and suggestions received by the Committee during public meetings and at any other times.

3. Examine and make recommendations on various long-term options for shoreline management, including:

    1. roles and responsibilities of the private sector, the various levels of government and shoreline landowners in:

        a. preventing the creation of new shoreline problems through the control of land use

        b. protecting and solving existing problems in built-up areas through capital remedial works and other measures

        c. providing assistance during emergency situations to combat flood and erosion problems, and

    2. the costs associated with the options identified.

4. Review the roles and responsibilities of the International Joint Commission and the Federal Government and make recommendations as to how the Province may better interact with them in the management of the Great Lakes system; and

5. Prepare and submit a report to the Minister of Natural Resources describing options and recommendations on issues listed in Sections 2, 3 and 4 above and other issues of interest and concern received during the public meetings and in the submissions, before October 31, 1986.

2.0 PUBLIC MEETINGS AND SUBMISSIONS

2.1 Public Meetings

Public meetings were called at the request of the Ministers to obtain public input on the management of the shorelines of the Great Lakes in Ontario.

Invitations to the meetings were announced in June and July in daily and weekly newspapers across the province. Each meeting was advertised at least twice, and some were announced in over twenty newspaper entries because of overlapping circulation and nearby meetings. The electronic media were also informed about the public meetings through news releases and communiqués.

In addition, a list of locations and dates of all the meetings was circulated by the Chairman in a letter to every municipality in the Province. This letter also described the background of the Committee and our desire for municipal as well as public input.

It was noted in the letter, newspaper invitations, and our opening remarks at each meeting that written submissions would also be welcome. Individuals who could not attend a public meeting in their area, who wished to augment their oral presentations, or who did not have time to prepare a brief for the earliest meetings, welcomed this approach, and have responded with over sixty submissions.

Through these announcements, the public was asked for opinions and suggestions on long-term options for managing the shorelines of the Great Lakes in Ontario. Input was specifically requested on the topics of:

- the roles and responsibilities of the private sector, various levels of the government and shoreline landowners

- preventing the creation of new shoreline problems

- solving existing problems in built-up areas
- providing assistance during emergency situations.

It was also noted that the Committee would make recommendations to the Province on how the Province may better interact with the Governments of Canada and the United States in the management of the Great Lakes system.

Twenty public meetings were held in fifteen shoreline centres around the Great Lakes, and Table 2.1 provides a detailed schedule of these meetings. Most meetings were held in the evening to facilitate public attendance. Several afternoon meetings were also called to allow for submissions by government and to ensure that there was time to hear municipal and public submissions from the most problematic areas.

In total approximately 1500 people attended the public meetings. We heard over 250 oral submissions and received about 150 written briefs during and after the public meetings. We also heard a balance of opinion from each area through presentations by individual landowners, cottagers, public groups, municipalities, public agencies and other interests. Appendix B provides a listing of those who made a submission to the Committee.

Your Committee was impressed by the number and diversity of recommendations, ideas and suggestions which were brought to us through the meetings. Many submissions provided the Committee with compelling arguments and suggestions, while others provided valuable insights into site-specific problems, or supplied historical data on the extent of flooding or erosion in each area.

An important aspect of the public meetings was that they were conducted in a format which was conducive to an exchange of ideas and information. When time permitted, presentors were questioned by the Committee following their submissions to obtain or clarify certain details. Similarly, the Committee

TABLE 2.1

SCHEDULE OF LOCATIONS AND DATES OF PUBLIC MEETINGS
CONVENED BY THE SHORELINE MANAGEMENT REVIEW COMMITTEE

Kingston:
Ramada Inn
1 Johnson Street
June 18, 1986; 7:00 p.m.

Collingwood:
Blue Mountain Inn
Blue Mountain Road
June 27, 1986; 7:00 p.m.

Thunder Bay:
Ramada Inn
17N Cumberland Street
July 3, 1986; 7:00 p.m.

Sault Ste. Marie:
Best Western Water Tower Inn
360 Great North Road
July 4, 1986; 7:00 p.m.

Sarnia:
Canterbury Inn
1485 London Road
July 9, 1986; 7:00 p.m.

Goderich:
Livery Theatre
35 South Street
July 10, 1986; 7:00 p.m.

Windsor:
Ecole Secondaire L'Essor
13605 St. Gregory Street
St. Clair Beach
July 17, 1986; 2:00 p.m. & 7:00 p.m.

Belle River:
Belle River Arena
Rourke Line Road
July 18, 1986; 2:00 p.m. & 7:00 p.m.

Port Colborne:
Lockview Park Secondary School
Janet Street
July 22, 1986; 2:00 p.m. & 7:00 p.m.

Port Dover:
Port Dover Public School
Main Street
July 23, 1986; 2:00 p.m.

Port Rowan:
Port Rowan Community Centre
College Avenue
July 23, 1986; 7:00 p.m.

Wheatley:
Wheatley Community Hall
27 Talbot Street West
July 31, 1986; 2:00 p.m.

Kingsville:
Kingsville Lions Hall
Mill Street
July 31, 1986; 7:00 p.m.

Blenheim:
St. Mary's Hall
August 1, 1986; 2:00 p.m. & 7:00 p.m.

Toronto:
Loews Westbury Hotel
475 Yonge Street
August 7, 1986; 2:00 p.m. & 7:00 p.m

responded to questions from the floor by providing information or directing the public to more appropriate sources. All meetings were also followed by informal discussions with the public who remained to expand on their submissions, or who wished to quietly discuss their problems or ideas.

Overall, the Committee was pleased with the public's response and the many ideas we received. This public input has been an important aid to the Committee and we would like to encourage a continuation of this procedure.

2.2 Summary of Public Submissions

2.2.1 Introduction

The vast majority of the public had but one thing in mind at the beginning of each public meeting. This was that they wanted something done immediately to lower water levels and to improve water management of the Great Lakes system. This opinion was expressed clearly, and sometimes forcefully, in each and every public meeting.

Other presenters had specific comments pertaining to shoreline management issues. Indeed, most of those who wanted lower levels followed their opening statements with many useful suggestions relating to shoreline management.

The following sections summarize the comments and suggestions we received from the public meetings. The first section summarizes public opinion and our recommendations to the Province on the topic of water management. This is followed by several sections which have grouped public comments on shoreline management into broad categories titled, Prevention, Protection and Emergency Assistance.

2.2.2 Water Levels

Our opening remarks at each public meeting drew attention to our Provincial makeup, and to our wish to report and make recommendations on areas within the mandate and responsibility of the Provincial Government. Although lake levels were noted as being a definite concern of the Province, it was emphasized that regulation of water levels and flows in the Great Lakes and connecting channels are the responsibility of the Federal Governments of Canada and the United States, and are not within the realm of Provincial authority. Your Committee advised the public that we could make recommendations to the Province on how the Province might better interact with the Federal Government, but that we were unable to make direct recommendations to the Federal Government regarding mitigation of extreme lake level fluctuations.

There is indeed a fine distinction between shoreline and water management in this particular jurisdictional context. As a result, many of the public viewed the Committee as a vehicle through which their complaints about high water and water management could be directly conveyed to the Federal Government. In general, most presenters were frustrated and angry about recent flooding and erosion of their properties. Many launched their submissions with the opinion that abnormally high water levels were accelerating their problems. Many agencies were blamed for the high water levels and most people wanted the Federal Government to do something immediately to rectify the situation.

It was the perception of many presenters that the International Joint Commission, as the implementing agency for controlling levels and flows on the Great Lakes system, and the agency which takes direction from senior government, was manipulating flows to benefit hydroelectric, navigation and other commercial interests on both sides of the border. The public felt that it was time that senior government directed the Commission to consider the shoreline owners as well.

Other presenters suggested that damage estimates from the storms of 1985 were too low. They provided the results of detailed surveys which suggest that tens of millions more than the official estimate of $30 million would still be needed to complete repairs.

There was also great apprehension about continuing high water levels and the potential for additional losses in the foreseeable future. It was repeatedly requested that your Committee convey a recommendation to the Federal Government that lake levels be lowered through improved water level management.

The suggestions for improving the management of Great Lakes water levels varied from meeting to meeting, and from speaker to speaker. Many requested regulation of Lake Erie; others suggested various changes in the operation of existing regulatory works and diversions, and others proposed new schemes for lowering lake levels. In most cases, the public perceived that there would be significant benefits from new or improved regulation.

It is beyond our resources and our mandate to assess the merits of the above-mentioned options for lake level management. However, your Committee is pleased that such options are now being examined as a result of the Federal Government's recent request to the International Joint Commission (IJC) to embark on a new Reference study into methods to alleviate the adverse effects of fluctuating lake levels. This Reference has the potential for giving long-term help to shoreline residents and may also bring together a considerable quantity of useful information directly related to provincial shoreline management.

Your Committee addressed the potential value of this Reference to the Province in a letter to the Minister of Natural Resources in mid-August (Appendix A). In the letter we noted that it may well be advantageous for Ontario to approach the Federal Government to share in part of the Reference. We also noted that the Committee feels it is important not to delay completion of the Reference.

There is concern in your Committee that the recommendations of this new Reference are one to three years from implementation. Hence, we recommend that the Province offer its assistance to the Federal Government in this International Joint Commission Reference so that it will be completed within the specified time. In addition, we would encourage the Province to approach the Federal Government to establish a communication strategy through which the Province and individual States can be privy to information and decisions of the International Joint Commission as they are developed.

As a last note on water levels, it is your Committee's opinion that water level regulation will not completely eliminate all shoreline problems, and that shoreline management will be required in Ontario regardless of the outcome of the new Reference to the International Joint Commission. Several presentations from people on the regulated lakes identified that flooding problems occurred during low level periods as well as during high levels; while others specified that erosion processes, septic system problems, sedimentation and pollution also continue unabated regardless of lake level.

Public comments to your Committee also touched on a wide range of other ideas, actions and methods for shoreline management. Public interest was primarily directed toward preventive and protective aspects of shoreline management, although short-term emergency measures were discussed at length by several presenters. The following discussions group the public's comments within these three broad categories.

2.3 Prevention

2.3.1 Information Dissemination

Your Committee visited many problem areas along the shoreline and also saw many other areas which were not yet problematic. However, some of the latter areas were in the early stages of development, subdivision, or con-

version from cottages to full-time residences, while other areas were on the threshold of future development. We were disturbed by the damage we observed but even more disturbed by the general absence of an effective mechanism to prevent future problems. We heard from many speakers who reflected our concern and/or who had just recently built along the shoreline and were now being affected by flooding or erosion hazards. It was stated by many of these owners that they would not have invested where they did if they had been informed beforehand about the potential hazards. They believed that their problems might also have been prevented by greater set-back requirements.

This lack of information appears widespread, and improved communication seems a necessary first step to preventing future problems. Some speakers, for example, recognized that they had made poor planning decisions because of their lack of knowledge about the basic natural processes connecting precipitation, runoff and evaporation to seasonal and long-term changes in levels. Others indicated that their efforts at damage prevention had been negated by wind-driven waves and daily changes in water levels which they had not been informed to expect. People on shoreline bluffs added that there is a need for information dissemination about the contributions to shoreline processes of groundwater seepage and gulley erosion. Much to their chagrin, these processes were entirely unknown or previously underestimated by many presenters. As indicated earlier, residents on the regulated lakes (Lake Superior and Lake Ontario) had many of the same concerns and noted that such regulation cannot in itself eliminate these problems. In some cases, it was suggested that regulation had contributed to problems by giving a false sense of security. This drew our attention to the need for better information dissemination about the limitations, as well as the advantages, of lake regulation.

We also found that surprisingly few speakers were aware of the flood and erosion hazard mapping which was conducted in 1975 as part of the Canada-

Ontario Shore Damage Survey. This information could have had a profound effect on damage prevention throughout the lower lakes had it been better publicized. Certain presenters were aware of the mapping, and had used it to advantage in programs for long-term damage prevention on their own properties or at the municipal planning level. Others had not seen or had forgotten about the Survey in the intervening years since its publication. It was also noted by some that a number of problems could have been prevented had this mapping been extended into the upper parts of Lake Huron and into Lake Superior.

It was our overall perception from these and other comments that more and better information needs to be transmitted to shoreline owners about shoreline processes and the problems which can arise. Many existing problems could have been prevented by a more widespread distribution of this information and many future problems will be prevented by an effort in this direction. Your Committee concluded that the Federal Government, as well as the Province and other agencies serving the shore, each have a responsibility in this regard, and we have recognized this in our recommendations.

2.3.2 Jurisdictional Issues

A particularly vexing problem to the public, municipalities, Conservation Authorities, and all provincial and federal agencies along the shore is simply the vast number of parties, pieces of legislation, overlapping jurisdictions and approaches to shoreline management/mismanagement which are offered by each group. We heard from many of these parties that some groups may support a particular shoreline activity while others advise a different action, a different approach, a different set of rules or may oppose it entirely. Some agencies appear to some people to be the logical party to approach for advice and approvals, while other people have approached another agency for equally valid reasons. In some cases, one agency has been applauded for being willing and helpful while its twin in another area may appear less so - perhaps only because it has been stymied by delays and

approvals which are required by other parties serving the shore. Overall there is a great confusion along the shoreline of Ontario as to who has what jurisdictional role, and how this role can be applied consistently to prevent future problems throughout the province.

While we recognize that part of this confusion is a result of a general lack of information about the roles and responsibilities of each group, there is clearly a larger issue. That is, there is a definite need for a single provincial agency to be identified to all as the lead agency for shoreline management. This was recommended to us by many of the public, and was unquestionably on the minds of many others when they relayed their frustrations to us. We have heard this concern and have responded to it by recommending that a single provincial agency be clearly identified as the lead agency for shoreline management. Part of this broad mandate will be to coordinate all other agencies concerned with the shore and oversee development of a streamlined approvals process through all levels of government.

2.3.3 Shoreline Planning

A number of other presenters saw the need for a consistent long-term plan of action for managing the shoreline. These people felt that shoreline planning should: consider prevention as well as protection; include preservation and enhancement of wetland areas; involve increased recreational opportunities for inland dwellers; and ensure the effective use of public funds. Others suggested that such planning would need to be consistently established on all the lakes, while others added that hazard-land criteria needed to be developed at an early stage. It was felt that the latter would ensure early, accurate identification of flood and erosion-susceptible areas so that appropriate set-backs and zoning by-laws could be quickly put in place to prevent future problems. Many others agreed with this idea and added that current, sometimes arbitrary set-back provisions were indeed inadequate and were perhaps contributing to the risks and problems rather than preventing them.

We also heard from other people who drew a strong parallel between shoreline planning and river watershed planning. It was their belief that many of the planning and management tools already in place for preventing riverine problems would be most appropriate for consideration on the shoreline.

Other people suggested that changes to the land surface through deforestation and drainage had contributed to increased lake levels. These people considered that land use planning throughout the Great Lakes Basin must emphasize the important role that vegetation cover, inland wetlands, and natural drainage may play in decreasing the variability in lake level fluctuations.

Your Committee heard, and is in agreement with, a number of other people who stressed that the shoreline is a unique natural resource. These speakers identified the educational, environmental, recreational and economic importance of this resource to all levels of government and the public at large.

There were also a few who were opposed to any intervention by governments into their own affairs. By and large, these people wished to do whatever they considered best to prevent problems on their own properties. This is certainly understandable, but must be considered in the perspective of other presenters who argued that actions in one shoreline area can, and have had, significant impacts on another area. Indeed, the vast majority of shoreline owners recognized that the time had come for some government intervention to assist them in managing the shoreline in a manner which would consider their problems and the well-being of all others along the shore.

In particular, the implications of one development on another adjoining (or even distant) area were addressed in every meeting as a specific example of the need for consistent shoreline management. Discussion in this regard generally centered on the need for some intervention to ensure that certain anomolous individuals would respect their neighbours' concerns and follow a course of action which would not increase their neighbours' problems. Many

options were discussed about the best method to address this issue and each option involved the participation of government.

We have addressed these general planning issues in a series of recommendations which must be followed to encourage the development of a consistent, uniformly-applied management plan for the shoreline. Some of our recommendations will require amendments to legislation. We have also made a recommendation on the need to specifically address the concerns of those shoreline owners whose properties lie adjacent to dissenting/anomolous landowners. Moreover, we have identified the agency which we believe is best suited to implement shoreline management planning at the local level.

2.3.4 Design Guidelines

Although protection is discussed in more detail later, some of the public identified the provision of design assistance as a preventive measure. These people pointed to the need for developing improved or innovative designs, and for a review process to ensure that these designs would indeed prevent future problems. Other speakers added that this design assistance applied equally well to selecting the best choice of preventive measures, such as the raising or relocation of structures. It was further suggested that guidelines and a regulatory standard had to be identified for regulating shore development and for selecting an appropriate level of protection. A 1:100 year standard was often mentioned in this regard.

We share in these opinions in our recommendations and have directed these tasks to the lead agency for shoreline management.

2.3.5 Studies

Although many presenters wished for immediate action, others advised some caution and suggested that there were a number of studies required to further assist in shoreline planning. Shoreline and gulley erosion rates

were specifically mentioned as needing more field research in order that better data would be available for establishing appropriate set-backs. We agree that this information is important for the long-term damage prevention and have asked the Province to join with the Federal Government to reinitiate involvement in this work.

2.3.6 Other Public Comments

It was also suggested that the preventive component of shoreline management should include shoreline monitoring. The object would be to ensure that illegal dumping and inappropriate structures were not creating new hazards, and that endangered buildings would be vacated (or removed).

We have also heard that certain jurisdictions are in the process of selling shoreline crown land and original shore road allowances which were reserved to be 66 feet from the high water line. Although seldom open, the road allowances were intended to ensure public safety and provide access to the water's edge. While we have not made a specific recommendation on this topic, we feel it would be prudent for these jurisdictions to reconsider such sales in light of the protective buffer provided by this land. Moreover, these lands add to the preventive component of damage reduction by automatically ensuring a degree of control over the development of potential hazard areas.

2.4 Protection

In addition to preventing future problems, shoreline management must address protection of lives and existing property. In this regard, we heard many interesting and often diverging opinions.

One opinion which came across in every meeting (and was evident from our own shore reconnaissance) was that much of the protection put in place by individual owners was inadequate and often inappropriate. Many people felt

that these works were either poorly designed, poorly constructed, or put in place without adequate regard for fluctuating levels or environmental forces. Some considered the majority of works to be unsightly and obviously ill conceived, while others brought to our attention the safety hazards associated with certain types of works. The same comments were made to us in reference to some municipal and provincial works - particularly those related to road protection and groyne fields. It is reasonable to conclude that many presenters felt that considerable sums of money were being wasted on ad hoc shore protection.

This discussion also spawned several complaints about the level of expertise of some contractors, municipal workers, or engineers who put these works in place.

Major shore protection works constructed by the Federal Government or the Metropolitan Toronto and Region Conservation Authority, for examples, were not subject to the same type of criticism. It was perceived that these were better engineered because of their size and cost. However, there were a number of negative comments about the downdrift effects of piers, and there were concerns that this and other effects were not adequately considered prior to the construction of major works.

The gap between inadequate individual works and more lasting, major works was identified by the public as being bridged by:

- development of design guidelines
- expanded technical advice to the individual owners
- better planning for shoreline protection
- increased funding to individuals

2.4.1 Design Guidelines

It is generally accepted that basic design standards for shore protection cannot be advanced in a building code format. Each site is unique and has

specific problems related to its location on the shore. However, many of the presenters recognized the need for a set of shore protection guidelines which would include:

- a list of the factors to consider (e.g. waves, set-up, beach profile)
- some standard provisions to include in the design (e.g. filter material for revetments, stable rock sizes)
- some standards of construction quality (gradation of backfill, compaction)
- typical cross-section of alternative types of protection
- eventually, some specific data related to portions of the shoreline in each littoral cell (e.g. frequency of lake levels)

We agree that these guidelines are necessary and have recommended their development by the lead agency.

2.4.2 Technical Advisory Service

The recent program of technical design advice to owners who are experiencing shoreline damage was broadly supported by the public. It is viewed as the best approach currently available to the owner to establish an appropriate level of affordable protection. An expanded program was encouraged by the public.

We are in agreement with this suggestion, and see this program as a very important element in minimizing future problems, as well as in providing protection.

2.4.3 Shore Protection Planning

The public noted that the overall shore management plan discussed earlier must also include a protection component. Most subsequent discussion about protection then centered around individual actions rather than larger works - perhaps because there have been few large-scale protection projects in the Province. Those people who mentioned the larger scale projects had a variety of views. The majority requested that down-drift effects be considered in planning these works, and some suggested design modifications (such as sand bypass system) be considered in the future. Others were more site specific and requested support for protection along the approaches to large depositional features such as Long Point or Point Pelee. Other briefs argued that these same features are some of the most dynamic transition zones on the lakeshore, and that protection attempts either would be futile or would destroy the environment they were designed to protect.

We also heard from those who indicated that it is beyond our collective ability to provide adequate protection along the entire shoreline. Some suggested that the option of protection should be entirely abandoned. Others advised that there was merit in protection but that protection schemes should be properly ranked and first provided to areas where they would be most cost-beneficial. Yet others advised that all shoreline areas should be carefully scrutinized to determine the level of the hazard; the benefits of protection; the merits of protection compared to non-structural approaches; and the capital cost of protection and maintenance. An implication of this last suggestion is that a screening process will identify specific areas which are entirely inappropriate for protective measures, and other areas which clearly deserve a high level of protection. All of these areas would be broadly identified in the shoreline management plan developed by the lead agency.

We have weighed each of these ideas and have incorporated a number of them in our recommendations. Principal among these is the suggestion that the

Management Plan for the Great Lakes must identify areas and sites where protection is a viable and desirable strategy deserving public funding and support. We cannot accept the concept that protection should be ignored, nor that protection should be compared and provided on the basis of cost-benefit alone. Rather, protection must be considered as part of an overall Shoreline Management Plan.

2.4.4 Funding

There was also universal agreement at our public meetings that there is a need for additional funding for shore protection.

Municipal representatives informed us about the many extra expenditures involved in recent provision of personnel and vehicles for flood fighting, cleanup, prevention and incorporation of municipal protection. Several other representatives advised that erosion and flooding had lowered their assessment base. Others felt their tax base might soon be eroded by these factors. Municipal representatives also added that municipal-wide shoreline protection was simply too expensive for any of them to attempt.

The landowners made it clear to us that they too had not been idle, and many described their new, modified, upgraded or repaired shore protection works. Some accepted the cost of this activity as the individual's responsibility but the majority requested that we consider tax breaks, grants or improved loans for such works. Some people advised that the protection they desired was too expensive, while several others added that they were on fixed incomes and unable to afford any protection at all. There was also apprehension that continued high water levels would rapidly shorten the lifetime of protective works.

We did not receive any submissions from the Province or Federal Government. However, it appears from related riverine activity, that the Federal Government has been shying away from any major involvement in protection works

since the 1970's. It is equally apparent that there have also been constraints on the Provincial budget. As parallels can be drawn to similar activity in the riverine environment, it seems likely that the Province would contribute to shoreline protection, but within a limited budget, needing augmentation from the Federal Government and the owners and/or municipalities.

We are in full agreement that new funding provisions must be provided for shore protection works. Our recommendations reflect this need but also identify that there must be constraints and priorities on this funding, and that all benefitting parties must share in the costs.

2.4.5 Shoreline Property Assistance Act

Until recently, this Act has been synonomous with shore protection. When first passed in 1973, it enabled municipalities to borrow from the Province to provide loans to those who wish to rehabilitate, repair, or put new shore protection in place. Amendments in July 1986 broadened this package to include financial assistance to those who wished to raise or relocate buildings as a result of damage (or to prevent potential damage) caused by flooding or erosion. These latter amendments were requested by the public in several of our early meetings, and were considered appropriate when finally put in place.

Recent amendments also included unorganized areas in this program through the Ministry - a discrepancy which was frequently mentioned in our meetings in Sault Ste. Marie and Thunder Bay.

We received many other comments about this program and these are listed below:

- 8% interest on the loans was considered too high. Several presenters suggested that 6% or less would be more of an incentive, while some requested interest-free loans.

- the $20,000 maximum loan was thought to be too low. Those with larger properties argued that this upper limit was a major constraint to effective shoreline protection of their properties.

- loans were not guaranteed and only provided after completion of a project. This caused some public concern, but it was also noted that no loans have been turned down.

- the loan was viewed by some as a lien on title rather than being deemed as a tax (as specified in legislation). We agree strongly with those who felt that care should be taken to ensure that potential buyers are informed about this declared tax.

- inspection was considered inadequate and appeared to verify only that some protective work had taken place. Many felt that an effective inspection and approval process was needed.

- those on limited incomes could not take advantage of the program. Some advised that they could not afford the 25% difference in cost between the loan and the total cost of the work.

- the loans were available to some but not to all, since some municipalities had not elected to provide these loans or had elected to make them available only to full-time residents.

- the program should include grants as well as loans. The owners could not be held responsible for high lake levels, yet they were obliged to be the first line of defence in protecting inland areas from erosion and flooding.

- some municipalities were reluctant to enter the program because they were concerned about administration costs.

- other municipalities were apprehensive that the loan program might affect their borrowing ability. We are advised that this program shall not have any effect in this regard.

- other municipalities were concerned about the potential for loan defaults, although we have been informed that none have occurred since inception of the program.

- other people felt that the program should receive annual funding to encourage ongoing protection works, rather than be one which only receives funding during periods of high water.

We carefully reviewed these comments and have recommended a number of changes to the existing Shoreline Property Assistance Program. Included among these recommendations are improved inspection procedures, increased funding, more equitable distribution, loan guarantees, extension of funding to the program and incentive grants.

2.4.6 Flood Insurance

Your Committee is aware that there is a resolution before the Legislature on this matter, and we have reviewed this proposal as well as other information on flood insurance.

The absence of flood insurance did not come across as a burning issue in the minds of shoreline residents. It was viewed as a positive benefit in one public meeting, and was considered undesirable in several others.

We were informed by the Provincial Superintendent of Insurance that flood insurance is not readily available from private firms in the province because of the certainty of claims from flood and erosion prone areas. If it were available, the cost of such insurance would be prohibitively high, and simply unaffordable to those who would want it. This is readily seen

from the American experience, where owners in high risk areas have participated only in almost completely subsidized insurance programs. However, since 1981, when American premiums have been on the rise, many people have dropped out of these programs or not enrolling at all. Here in Ontario, we have heard from inland and shoreline owners that they would be most reluctant to participate in a compulsory program (particularly if subsidized) and unwilling to support the costs involved in establishing, administering, and underwriting a provincial insurance scheme.

Of significant importance on our view is that flood insurance offers absolutely no long-term or short-term advantage in terms of protection, prevention or reduction in the cost or potential for damages. In fact, it has been suggested that flood insurance increases the potential for loss of life, since it promotes continued occupation in hazard areas. For this reason alone, we cannot support a provincial flood insurance scheme for the shoreline. Your Committee also appreciates that there are only limited funds for shoreline management. We prefer that these funds be spent productively on prevention and protection rather than on insurance.

Another, more general aspect of insurance is that we heard that some people appeared to have been compensated for storm-related damages while others were not. This apparent inequality was later clarified when it was explained that claims had been paid to those who had been affected by wind, but that compensation had not been provided for typical policy exclusions (relating to wave and flood damage).

2.5 Emergency Assistance

Emergency planning was recognized by landowners and municipal representatives as being an important element in preventing loss of life and reducing damage. However, municipal planning for emergency events is optional, and we heard that some small municipalities were at a loss as to how to develop these plans. Other people advised us that current plans need to be reviewed

to ensure that shoreline hazards are specifically recognized. We are in agreement with these points and have made several recommendations to this effect.

Other speakers were concerned about the level of information which is provided to the public about emergency planning. It was suggested that shoreline residents should be given information from the municipality so that each resident would know what to do in an emergency situation. Others took this point further and suggested that a mechanism needs to be developed so that shoreline owners can be quickly informed about impending emergencies. We see that this is a definite opportunity for the municipalities and/or the Province to draw on the communication network already established by ratepayers associations, cottage groups and shoreline coalitions.

Several others suggested that these short-range emergency plans should also be reviewed to ensure that they are consistent with long-term plans for the shoreline. It was suggested, for example, that when buildings or roads in identified hazard areas are destroyed in a storm, their replacement in the same area should not be automatically encouraged through post-disaster relief programs.

The public supported provincial assistance during and after storm events, and suggested that it be continued. We heard, for example, that representatives from Dover and Harwich Townships appreciate the pumps which are provided for flood relief by the Chatham District of the Ministry of the Natural Resources, but that both Townships are concerned about mounting operational costs.

We also heard from several municipalities which have repeatedly faced the costs of emergency responses to shoreline flooding and/or erosion. These municipalities report that the sum of the incremental costs has risen to a total which the municipality can no longer afford - even with provincial assistance from unconditional grants. Several other municipalities informed us that they were quickly approaching this point.

It was our impression that individual owners are prepared to act in response to emergency conditions. This was borne out by the number of people who reported that they were taking advantage of the Ministry of Natural Resources' program (providing free sandbags to shoreline residents through their municipalities), and the number who had constructive criticism.

We heard from speakers on Lake Superior, for example, that there was a need for a consistent policy relating to the distribution of these sandbags. In some instances, municipalities were only providing these bags to permanent residents, while neighbouring municipalities provided sand and sandbags to seasonal residents as well. Landowners in these areas were particularly grateful for this help from their municipalities. We also heard that more bags were needed in some areas; that the quality of the bags was highly variable; and, that a nominal charge should be imposed to reduce apparent abuse of this free program.

These latter concerns have also been addressed in our recommendations. We feel that there is merit in the suggestion that the lead agency for shoreline management establish guidelines for sandbag distribution. Similarly, technical advice and guidance concerning sandbag deployment can also be provided.

2.6 Concluding Comments

There is no doubt in our minds that the public hearings were invaluable to our review.

We heard many excellent presentations, covering a diversity of thoughts, opinions and concerns, all of which could be gathered in no other way than through the public forum. The public meetings also provided us with an opportunity to visit all of the Great Lakes, to gather a consensus of opinion and obtain contrasting viewpoints from each area. The Committee learned that many of the issues are indeed common along the entire provin-

cial shoreline, but that there are also specific local concerns which cannot be ignored.

The following chapter details our recommendations, on shoreline management programs. In some cases, we have weighed contrasting public opinions and selected a course of action which may not be supported by all of the public. However, the vast majority of our recommendations echo public opinion, and we have recommended that this process of public input be continued in the future.

3.0 RECOMMENDED SHORELINE MANAGEMENT PROGRAM

The Committee quickly recognized from the public meetings and our own investigations that the three principal factors moulding today's shoreline condition have been:

1) The absence of a comprehensive policy which would regulate land use and development in the flood and erosion-prone areas of the shoreline.

There are exceptions, but new development, extension of current development and re-development have generally continued in many areas with little or inadequate regard to potential flood and erosion hazards. This is compounded by:

2) A myriad of agencies, pieces of legislation, subsidies and programs which have sometimes accentuated the problem or frustrated effective solutions.

The many parties with varied interests in the shore have unintentionally but certainly confused shoreline owners. It is apparent that many landowners are justifiably uncertain as to whom to turn to for advice or assistance. Many who have selected an agency for guidance have made the wrong choice, or have entered the "merry-go-round of approvals" at the wrong point. Table 3.1 lists but a few of the agencies and more common approvals facing landowners along the shore. Although these agencies are at work in their various roles, and have provided information to the public from time to time:

3) The absence of active information dissemination has left many shoreline owners with a vague and often distorted impression of lake and shoreline processes, the potential of ever present flood and erosion hazards, and the roles of government and the individual shoreline owner.

Both the Federal and Provincial Governments are seen as being remiss in this regard. Very useful information has been developed by both levels of government but it clearly needs to be more widely distributed prior to the onset of problems, rather than in reaction to them.

The Committee has made a number of recommendations in the following pages to rectify the above problems and carry the development and implementation of shoreline management to fruition. In this section, your Committee recommends that:

- the Ministry of Natural Resources be designated as the lead agency for shoreline management

- the Conservation Authorities be designated as the implementing agency at the local level

- a Council, called the "Shoreline Management Council", be appointed to solicit public opinion and carry recommendations to the Minister of Natural Resources

The roles and responsibilities of each group are summarized below.

3.1 Lead Agency

It is the Committee's observation that the Ontario Ministry of Natural Resources (MNR) and the Conservation Authorities have traditionally been identified by the public of Ontario as having the foremost role in managing river flood plains. Both have been responsible for implementing flood plain and erosion management policies and practices, and the Ministry of Natural Resources has carried this responsibility into large areas of the Province where there are no Conservation Authorities. For many years the Ministry of Natural Resources has been instrumental in promoting flood warning and emergency planning, and is currently responsible for administering several Acts,

TABLE 3.1

SOME COMMON REQUIRED APPROVALS

Activity	Agency	Legislation	Who Needs to Apply	Description
* Construction on Crown Land	MNR	Public Lands Act	Municipalities and private landowners	- no structure or other matter may be situated on crown lands without approval.
* Construction in Lakes and Rivers	MNR	Lakes and Rivers Improvement Act	Municipalities and private landowners	- permit is required for construction of any structure in or along any stream, river or lake. - this includes protection works on the beach and in the water
Removing sand and gravel	MNR	The Beach Protection Act	Cons. Auths. municipalities and private landowners	- regulates the removal of sand and gravel from beaches and under the waters of any lake, river or stream. - intended to prevent and minimize erosion of beach property.
* Fill in Floodplain	Cons Auth.	The Conservation Authorities Act	Municipalities and private landowners	- controls placement of fill in regulated floodplains.
* Construction in Floodplain	Cons. Auth.	The Conservation Authorities Act	Municipalities and private landowners	- controls construction in regulated floodplains to prevent loss of life or property.
* Construction in a Navigable Water	Transport Canada	Navigable Waters Protection Act	Province, Cons. Auth. municipalities, and private landowners	- controls construction in navigable waters. - exemptions are usually obtained for protection works.
Placement of materials in lakes and rivers	MOE	Water Resources Act	Cons. Auth., municipalities and private landowners	- no permit required prior to construction but MOE can stop work if they judge the work to adversely affect water quality.
Environmental Assessment (Class EA)	MOE	Environmental Assessment Act	Cons. Auth., MNR and municipalities	- environmental screening of projects dealing with shore protection.
Environmental Assessment (Individual EA)	MOE	Environmental Assessment Act	Cons. Auth., MNR and municipalities	- environmental impact assessment for projects of larger size (i.e. over $2 million in Dec. 1977 dollars) and of potential significant impact.
Construction over any public shore, bay, harbour, river or water	Municipality	Municipal Act	Private Landowners	- approval for construction over public shores and water, if municipality passes by-law
Building Permit	Municipality	Municipal Act	Private Landowners	- required where retaining walls are constructed.

* Normal approvals required by individual Landowners.

From Reinders and Assoc. (1986)

all specifically related to shoreline management issues (i.e. Public Lands Act, Beach Protection Act, Lakes and Rivers Improvement Act). The Ministry of Natural Resources staff have worked closely with their Federal counterparts in Canada-Ontario programs, which have assisted the province in preparing a Shoreline Management Guide, Great Lakes Shore Damage Surveys, and Great Lakes Flood and Erosion Prone Areas mapping. They have also initiated or supported the preparation of other recent studies and reports on shoreline matters.

Overall, the Ministry of Natural Resources has a proven record in the hazard lands management of rivers and interior lakes, and this role is recognized by the public throughout the Province.

It is your Committee's recommendation that this recognized role as the lead Provincial agency for flood and erosion hazard management remain with the Ministry of Natural Resources, and be reinforced and expanded for consistency to include the shoreline areas of the Province as well as the riverine areas.

3.1.1 Role of the Lead Agency

It is our belief that the Ministry of Natural Resources, as the lead agency for shoreline management, should be broadly identified as co-ordinators and developers of Provincial Policy rather than the principal implementers at the local level. In summary, this co-ordinating agency would have the general mandate for:

- joining with the Ministry of Municipal Affairs and other interested Ministries to prepare a Policy Statement recognizing the importance of shoreline management in land use planning practices

- establishing a consistent, long-term Shoreline Management Plan and guidelines for managing the shoreline of the Great Lakes in Ontario

- co-ordinating the involvement of other Provincial agencies serving the shoreline, and being identified as such for the purposes of Federal-Provincial co-operation

- securing and distributing funding to the implementing agency to carry out Ministry of Natural Resources' policies

Certain specific elements have been deemed important by the Committee and the public for inclusion in these tasks. It is suggested from our perspective that the Ministry of Natural Resources:

a) join with the Ministry of Municipal Affairs and other interested Ministries to prepare a Policy Statement under the Planning Act (or amend current statements) to reflect the Province's significant interest in improved management of the Great Lakes shoreline. It would emphasize provincial resolve to include recognition of shoreline management in land use planning practices, and focus on the need to prevent new problems and correct existing ones. The objective of the policies contained in this document would be similar to those related to long term planning for flood plain lands, which address:

    - prevention of loss of life
    - minimization of property damage and social disruption
    - encouragement of a co-ordinated approach to the use of shore lands

    A strong statement of provincial policy would heighten awareness of the diverse and valuable resource which the shoreline represents, and draw attention to the need for co-operative solutions along the entire shoreline. In this document the Ministry of Natural Resources would be identified as the lead agency for shoreline management. Planning for a reduction in long-term flood and erosion susceptibility would be recognized as the key priority throughout the policies it would contain.

b) establish a consistent, long-term Shoreline Management Plan and guidelines for managing the shoreline of the Great Lakes in Ontario.

This Plan would be prepared to guide the implementing agency in initiating its work, and to provide direction for consistent application of policy and guidelines at the local level. The plan would:

- define the roles of the implementing agency and the Ministry of Natural Resources in carrying out shoreline management, and would contain a mechanism to ensure co-ordinated implementation on all the Great Lakes

- identify the boundaries of littoral cells - the lakeshore "watersheds" - in each of the Great Lakes, and the general characteristics of each cell (e.g. important natural wetlands, dune areas, source areas of littoral materials, areas of extreme flood and erosion hazard). It is very important that these cells be treated as single units for effective management

- broadly identify reaches in each littoral cell where protection is a viable strategy deserving public assistance, and reaches where it would be more appropriate to provide incentives supporting a co-ordinated effort of non-structured actions, such as raising and/or relocation of buildings or acquisition

- identify minimum acceptable regulatory flood and erosion criteria (e.g. 1:100 year) to define the limits of shoreline hazard lands for regulatory purposes

As developers and supporters of the Plan, it will be necessary for the Ministry of Natural Resources to:

- establish a Great Lakes unit within the Ministry and ensure that sufficient in-house expertise is available in that unit to allow

for the consistent review of proposals and other submissions from the implementing agency.

- develop and disseminate technical guidelines for establishing consistent and defensible flood and erosion limits along the shoreline

- develop and disseminate technical guidelines for the design of: protection works, flood proofing in shoreline areas, and the raising and relocation of flood-prone structures - including criteria relating to the selection and implementation of each option

- support research into Great Lakes' shoreline processes and initiate other such studies required to further improve shoreline management and our understanding of Great Lakes' hydrology and hydraulics

- support shore protection research and development of innovative, cost-effective shore protection works

c) co-ordinate involvement of other Provincial agencies serving the shoreline:

- develop a co-ordinating mechanism to ensure that the many and various proposed activities of other Provincial agencies along the shoreline can be reviewed and discussed to reach mutually agreeable solutions

- develop an integrated streamlined approvals process with other Provincial ministries to enhance the movement of applications or approvals through government (i.e. routing of approvals in a procedure similar to the present routing of land use zoning applications)

- approach the Federal Government to solicit their support in joining in this streamlined approvals process through the single "window" of the implementing agency. Applications under the Navigable Waters Protection Act, for example, would be completed by the individual and sent to the Canadian Coast Guard by the implementing agency

- consult with the Ministry of Municipal Affairs in the implementation of the above-mentioned Policy Statement

- designate responsibility to the implementing agency for plan input and review related to shoreline hazard matters

- work with the Ministry of Municipal Affairs to make amendments to the Shoreline Property Assistance Act concerning inspections and technical advice

- undertake a review of current policies and practices relating to Ministry of Natural Resources shore-related legislation (e.g. Public Lands Act) in order to clarify and develop consistent procedures throughout the Province

- continue to be the lead Ministry and provide emergency assistance during and after severe events

d) secure and distribute appropriate funding to carry out shoreline management policies

- establish budgets for shoreline management activities, and approach the Province for required new funding to be dedicated to flood and erosion prevention and protection measures along the shoreline

- discuss with the Federal Government the need to expand the Canada-Ontario Flood Damage Reduction Program to accelerate hazard land mapping and studies geared to shoreline damage prevention

- approach the Federal Government to obtain funding for all projects involving non-structural options. Because of the recognized Federal responsibilities concerning lake levels, these discussions must also consider provision of Federal funds for structural works which are now considered critical

- develop a uniform priority ranking procedure to allow all shoreline projects to be assessed on their merits in a consistent and equitable manner

- work with the Ministry of Municipal Affairs to amend levels and types of funding provided through the Shoreline Property Assistance Act

The above activities are not intended to be an all-inclusive schedule of actions for the Ministry of Natural Resources or the Ministry of Municipal Affairs. Rather, they are your Committee's perception of items which appear important in developing consistent policies and guidelines under the umbrella of this single lead agency. They address the public's overriding concern about the inconsistencies, absence, or overabundance of policies and agencies, and should also be beneficial in implementing a Shoreline Management Plan.

3.2 Implementing Agency

Your Committee considered the Ministry of Natural Resources, local municipalities, and a completely new agency in our deliberations on the establishment of an implementing agency. The Ministry of Natural Resources was rejected because it is perceived as being too far removed from local issues,

and has no formal procedure for public input. The municipalities were considered to have the required local flavour, but were thought to lack the technical capability to handle a difficult role extending well beyond municipal boundaries. A new agency for shoreline concerns was also rejected, because we saw it adding another layer of government and possible inconsistencies to an already confusing picture.

As indicated previously, however, the public has identified the Ontario Ministry of Natural Resources and the Conservation Authorities with programs of water and related land management - principally on the river systems in the Province. This joint role has evolved over the 40 year period since 1946, when the Conservation Authorities Act provided the means by which the Province and municipalities could join together as a Conservation Authority to undertake programs for water management.

Over the intervening years the Conservation Authorities, where they exist, have carried out comprehensive programs to prevent loss of life and damage to property due to flooding and erosion. They have been seen as the implementing agencies for flood control planning, and have been identified with remedial and regulatory programs to protect valley systems from the effects of flooding and erosion. A few have recently begun waterfront programs to enhance public recreation opportunities and to reduce erosion along the shoreline of their member municipalities.

It is this local involvement and initiatives stemming from it, combined with public funding and guideline support from the Ministry of Natural Resources, which have successfully combined to place this Province well ahead of most jurisdictions in flood damage reduction programmes. An effective working relationship has evolved for addressing similar problems on river systems, and your Committee sees little reason for tampering with this relationship in establishing it for shoreline areas.

Hence, the Committee recommends that the Conservation Authorities Act be amended, if required, to extend the jurisdiction and geographical boundaries

of shoreline Authorities to include shoreline and nearshore areas of the Great Lakes in Ontario. It is also our recommendation that the Conservation Authorities (and the Ministry of Natural Resources where there are none) be authorized to act as the implementing agency to administer the shoreline policies of the lead agency.

It is our opinion that these steps will consolidate the already perceived role of the Authorities into a consistent, Province-wide mandate.

3.2.1 Role of the Implementing Agency

The role of the Conservation Authorities in shoreline management is visualized as being much the same as their current role in hazard land management in Ontario's river basins. They are now responsible for plan input and review related to flood and erosion matters, and should be entrusted with the same responsibilities for the shoreline. Principal among these responsibilities would be:

- assisting member municipalities in incorporating shoreline hazard land management into land use planning processes

- consulting with other agencies and providing comments to them on planning actions pertaining to shoreline management matters

- exchanging information with the public about shoreline management planning and shoreline processes

While it will be impossible to immediately implement adequate shore protection throughout the Province, it is deemed likely that the Conservation Authorities can quickly make significant strides in damage prevention by:

- conducting flood/erosion hazard mapping and related studies through the Canada-Ontario Flood Damage Reduction Program in order to quantify the extent of the hazard

- working with their member Municipalities in establishing planning controls to implement shoreline flood-erosion provisions in official plans and zoning by-laws

- initiating inventory studies of their shoreline resources to delineate wetlands, shoreline surficial soils, erosion rates, particulars about development, and other factors such as are summarized earlier in the Canada-Ontario Coastal Zone Atlas

- administering fill, construction, and alteration to waterways provisions of the Conservation Authorities Act, as extended to shoreline areas

- recognizing areas where regard should be given to the important role that vegetation establishment and management can play in shoreline stabilization

It is also noteworthy that the Ministry of Natural Resources, where there are no Conservation Authorities, must also be the implementing agency and responsible for plan input and review concerning shoreline flood and erosion matters. Hence, the Committee recommends that legislation administered by the Ministry of Natural Resources be amended to provide this ministry with the powers of Section 28 of the Conservation Authorities Act. This will enable the Ministry of Natural Resources to make regulations regarding the placement of fill and construction in flood erosion susceptible areas. These regulations are the foundation of long-term damage prevention, and their implementation is essential for the success of shoreline management.

The implementing agency will also play a significant role in shoreline protection. Although there are exceptions, protection is now generally undertaken in an ad hoc manner and without the benefit of any guidance from a comprehensive plan for shoreline management. As implementers of this Plan, the Conservation Authorities will:

- identify and priority rank portions of the shoreline in their local jurisdiction where a co-ordinated effort of shore protection (or alternatively, a non-structural approach) is a viable strategy deserving public assistance

- assess and rank major shoreline protection projects and submit them for funding consideration to the Ministry of Natural Resources

- disseminate technical guidelines for the design of shore protection works, flood proofing, and the raising/relocating of structures

- provide free technical advice to individual landowners about shore protection and other options for damage prevention.

- provide free technical advice to those making applications through the Shoreline Property Assistance Act.

- approve and inspect individual shore protection works

As this technical advice forms part of the long-term plan for damage prevention, it is recommended that the ongoing Technical Advisory Service be extended beyond the current deadline.

As indicated previously, many people are frustrated by the number of agencies they must visit to obtain approvals for shore protection works. They are also annoyed about the delays which are involved. Similarly, we also see that the current approach may have forced some agencies into initiating a project review within hours of project implementation. The process certainly needs to be streamlined, and we have recommended that the implementing agency be the single "window" for shore-related applications.

We propose that people who wish to construct shore protection works be directed to the implementing agency to obtain all application forms which

may be necessary to finally approve the work. The implementing agency would: discuss the work with the applicant; determine if the work is compatible with the Plan; provide free technical advice and indicate design changes (if they are necessary); assist in completing the forms; forward completed application forms to all appropriate agencies or municipalities for review and approval (or direct the applicant to the individual agencies); review the approvals or concerns of the other agencies; and approve the work when all concerns are satisfied. If a building permit is required, applicants will be directed to their municipality.

The implementing agency and the municipality will confer on applications for funding under the Shoreline Property Assistance Act. Approved projects will be able to receive special grants, and will be guaranteed a loan.

Additional information about the need for an improved approvals process in the Shoreline Property Assistance Act is provided later in this chapter (Section 3.5.3). However, it is important to note that the absence of technical assistance and any requirements for technical approval of shoreline works under the Act have caused municipal concern about loans for questionable works and possible loan defaults.

The proposed inclusion of technical advice by the Conservation Authorities is viewed as a way of strengthening the municipal-provincial partnership through the Conservation Authorities. The Conservation Authority will have provincial support and the technical skills and back-up to approve and inspect applications for shoreline works. They will also have the data to provide comment on erosion rates, flood levels and wave runup. Complementing this is the expertise of the municipality in the review, inspection, and permitting of all aspects relating to building and service repairs, and raising and/or relocating of structures. A blend of both areas of expertise is viewed as essential for an effective program of damage prevention.

Hence, those wishing to do work along the shoreline would approach (or be directed to) the Conservation Authority to obtain all necessary applica-

tions. In some cases the applicant may wish a loan or will need to obtain building permits from the municipality. These latter applications would also be available at the municipal offices and would be forwarded to the Conservation Authority when they are filled out. In these and all other cases, both the Authority and the municipality will work together to develop priorities for local projects, distribute proposed incentive funding, and assess the appropriateness of loans.

Another particularly important feature of shoreline management for existing Conservation Authorities is that the geographical boundaries of current, riverine-based Conservation Authorities are unlikely to coincide with the boundaries of littoral cells (shoreline watersheds). In some cases a littoral cell will be contained entirely within the boundaries of one Conservation Authority, but in many cases, two or more Conservation Authorities will share the same littoral cell. These cells will be identified in the Shoreline Management Plan and must be treated as single units for effective management.

A methodology for managing these units and consistently applying guidelines will require close co-operation between adjacent, shorefront Authorities - particularly in considering the downdrift effects of proposed shore protection within each littoral cell. Your Committee believes that the Authorities will be obliged to work together under the direction of the Plan and we are confident that regular meetings of members from each Authority within a littoral cell (or the Ministry of Natural Resources where the littoral cell extends to where there are no Authorities) would ensure that actions and proposed plans of each Authority can be jointly determined to the advantage of all. These groups would also be able to draw on the expertise of the Ministry of Natural Resources and refer to the Ministry to resolve any problems, particularly during the early years when all parties would be formalizing their basic management strategies.

Members of each littoral group would carry the results of discussions to their own Authority. Proposals for joint projects (crossing Authority boun-

daries within each littoral cell) would be flagged as such and submitted to the Ministry of Natural Resources for ranking with other comparable projects. When approved, these projects would be financed through funds allocated to each Authority in the littoral cell.

The Committee understands that our recommendation for the initiation, review and formal approval of a Policy Statement (incorporating Shoreline Management Planning) will establish and perpetuate shoreline management as part of the land use planning process through the Planning Act. Similarly, provisions of the Conservation Authorities Act (with our recommended amendments for inclusion of the shoreline), and recommended amendments to legislation administered by the Ministry of Natural Resources will allow the implementing agency to make regulations relating to fill and construction activities in flood and erosion susceptible areas. Your Committee sees the combined implementation of these few, basic recommendations as sustaining Ontario's legislative commitment to shoreline management.

3.3 Shoreline Management Council

An aspect of Ontario's commitment which could be inadvertently overlooked throughout these legislative changes is the benefit derived from public input and recommendations to an impartial body reporting to government. This Committee received valuable insights via this route and would like to encourage a continuation of this procedure. We see that this could be particularly useful in monitoring implementation of the Management Plan, and in evaluating needs for change.

We have also seen that there is also a need to sustain public, municipal, and government interest in the shoreline management initiative. The history of shoreline management to date (Section 1.3) has been all too cyclical, and interspersed with lengthy periods of inactivity. Much protective and preventive work could have been accomplished in these intervals to prepare for the next/today's situation. There has simply been a need for a group to stimulate a consistent level of action in shoreline management.

While we anticipate that many of these activities could be handled by Ministry staff and their advisors, it will be difficult for the Ministry and Conservation Authorities to gain an impartial overview of public opinion and of their own activities. Hence, we recommend that the Province establish forthwith an independent Shoreline Management Council with some support assistance. The Council would be appointed by the Minister of Natural Resources and report directly to him.

We see the Shoreline Management Council as an independent body of people, all sharing a strong interest in shoreline management and a commitment to seeing it through from these beginnings into the long-term. Members would represent various geographical areas and areas of specific shoreline interest and/or expertise, to provide the Minister with a comprehensive blend of input from various points of view. A permanent member from the lead agency could be designated by the Minister as secretary of the Council.

The Council's strength will largely be derived from public input and its principal roles will be to:

a) regularly solicit public opinion about shoreline management through public meetings held in different areas around the Great Lakes

b) provide assistance to the lead agency during development of the Management Plan

c) prepare an annual report of recommendations to the Minister for public distribution and review. The report would be based on public input and the Council's assessment of the implementation of the Plan

d) assist in an advisory capacity in other special duties requested by the Minister.

The nature and extent of these advisory duties would depend on the composition of the Council, and other factors arising during the development and implementation of the shoreline management initiative. However, it can be established now that the Council should contribute to the development of criteria for establishing funding priorities; contribute to the review of technical guidelines; provide advice on shoreline research topics; comment on the public's perception of International Joint Commission activities; and/or, serve as a source of general information for the public on the topic of shoreline management.

Your Committee foresees that the Council will occasionally wish to obtain an outside opinion or background information on some topic of shoreline management. Hence, the Council should also be given the authority to request funds to commission specific studies or background research.

In conclusion, the Committee does not consider the above activities to be an all-inclusive schedule of action by the Conservation Authorities, the Ministry of Natural Resources, or the Shoreline Management Council. Rather, they are several of the more important tasks required for consistent implementation of the plans and guidelines of the lead agency.

Additional details concerning the roles and responsibilities of various levels of government and the landowner are discussed below under the topics of prevention, protection, and emergency response.

3.4 Prevention

It is your Committee's opinion that the most important item on the agenda for shoreline management in Ontario is the prevention of future problems.

During our field investigations prior to public meetings, we visited many problem areas along the shoreline of the Great Lakes and heard about the damage and loss of property in many other locations. It was our observation

that a significant percentage of this development took place following the 1953 report of the Select Committee of the Ontario Legislature. That Committee recommended restrictions on development in shoreline flood and erosion prone locations and acquisition of the most hazardous areas.

We were also informed that in 20 Southern Ontario municipalities, hazard land construction increased by about 40% in the ten years following the last period of high water levels in 1972-73. These hazard lands were clearly identified in the 1975 Canada-Ontario Great Lakes Shore Damage Survey and Coastal Zone Atlas which also noted future development and land use should be regulated in shoreline hazard areas. The 1982 final report of this Survey again advised of the need for action in this regard.

We observed that some of the structures built in this recent period are now in jeopardy, and that hazard land development is still continuing. In view of all our observations, we have concluded that the vast majority of recent and ongoing problems would not be present if the governments of those earlier periods had acted positively in a program of damage prevention.

During our recent public meetings, several presenters argued that the developable shoreline is now almost entirely developed, and that it is too late to prevent problems in most areas. We also heard compelling counter arguments that large portions of each lake are still undeveloped but gradually succumbing to development pressures. In many other instances, structures are being upgraded, lots are being subdivided to increase shoreline density, buildings are being converted from modest seasonal residences to larger or permanent dwellings, and re-development is taking place. In other areas development pressures are so intense that structures are now being placed at the foot of eroding bluffs, or on fill which extends into the lakes or into unique shoreline wetlands.

Overall, the lakeshore is a dynamic evolving zone where levels of development and land use are constantly changing. The very fact that there are

these changes lends itself well to damage prevention in that there are opportunities for preventive measures at every stage of the way.

3.4.1 Suggested Approach and Responsibilities

We have earlier discussed the general roles of the Ministry of Natural Resources, the Ministry of Municipal Affairs, and the Conservation Authorities in developing and implementing a Management Plan for the shoreline of the Great Lakes. Certain of their roles are clearly preventive ones, and initiating actions to prevent the development of new problems rests almost entirely with these public agencies. Tools which are already in place to begin a preventative component of a shoreline management plan include:

- the Planning Act
- the Conservation Authorities Act
- the Canada-Ontario Flood Damage Reduction Program

These mechanisms have been used to prevent new problems in riverine situations, and with some modification can also be applied equally to the shoreline of the Great Lakes.

3.4.2 The Planning Act

Section 3 of the Planning Act gives the Minister of Municipal Affairs the authority to join with the Minister of Natural Resources and other Ministries to issue a Policy Statement on matters of provincial interest relating to municipal planning. As noted earlier, we have toured much of the shore and feel that shoreline management matters clearly merit provincial and municipal attention. Hence, your Committee recommends that a Policy Statement be prepared to formally recognize shoreline management in municipal land use planning. It is felt that this would ensure that any shore municipality, or other agency exercising planning authority, would be obliged to have regard to this policy in developing or reviewing Official Plans, zoning by-laws and other planning proposals.

The Committee is also interested in a consistent, co-ordinated approach to hazard land planning. This proposed Shoreline Management Policy Statement must certainly have many features similar to those found in the draft policy statement on Flood Plain Planning. These two statements may ultimately be combined, but for the present we suggest that the latter have regard for the potential future inclusion of shoreline policies as well.

The municipality has the tools and a major role to play in damage prevention. The municipal role in damage prevention relates to their responsibility to guide development away from hazard-prone areas when preparing Official Plans and when passing land use controls. Zoning by-laws may be passed to restrict the location, erection or use of structures in flood prone lands or on steep slopes. They may also specify the minimum elevations of openings into buildings as a flood proofing measure. Site plan control and subdivision control may also be used by the municipality. By way of information, there are also well-established appeal procedures under the Planning Act.

Your Committee feels that these damage prevention features under the Planning Act can and should now be acted upon by all shoreline municipalities. Many municipalities have done so and have been looking to the long-term in regard to their shoreline. The public have said that many other municipalities have not, and we believe that the proposed Policy Statement will certainly give the shoreline planning process an infusion of much needed energy.

It should be added that one of the first responsibilities of the local Conservation Authority (or Ministry of Natural Resources) will be to provide technical information on shoreline flood and erosion matters to their member municipalities when they are preparing these by-laws. The material collected in the Canada-Ontario Great Lakes Shore Damage Survey and Coastal Zone Atlas is an excellent interim source of information until the shoreline Management Plan is completed.

The municipalities also have an important role in distributing shoreline information to the public. All too often we have heard from the public that they were not aware of studies and hazard land mapping already completed in their area (i.e. the Coastal Zone Atlas). It would be a simple and very valuable preventive action if this information was prominently displayed in public buildings.

3.4.3 The Conservation Authorities Act

The broad mandate of a Conservation Authority is to:

> "Establish and undertake, in the area over which it has jurisdiction, a program design to further the conservation, restoration, development and management of natural resources..."

Although the mandate is broad, in practice the prime responsibility of Conservation Authorities is considered to be water management (i.e. water quantity and related hazards). In many instances, however, this mandate is not clear in regard to shoreline management. Some Authorities have regulations in place on their shorelines, others are uncertain of their mandate due to a lack of clarity and a strong signal from government, and others are limited by enabling Orders in Council which terminate their jurisdiction at the water's edge.

These disparities must be rectified if the Conservation Authorities are to act in a consistent role as implementers of shoreline and riverine management. It is for this reason that your Committee recommends that the Conservation Authorities Act be amended to extend the jurisdiction and geographical boundary of shoreline Authorities to include the shoreline and nearshore areas of the Great Lakes.

Section 28 of the Conservation Authorities Act contains several regulations, commonly referred to as Fill, Construction and Alteration to Waterways Regulations. These allow the Conservation Authorities to prohibit or regulate:

- channel modifications
- the construction of dwellings and other structures in flood-prone areas
- the placing or dumping of fill in the area over which the Conservation Authority has jurisdiction

These regulations control activities, rather than land use, in and near watercourses (i.e. the hazard land areas of the Authority). The regulations under Section 28 can also assist in implementing Policy Statements under the Planning Act. There are also well-established appeal procedures under the Conservation Authorities Act.

The Committee believes that regulations under Section 28 must be viewed as the foundation of preventive strategies to minimize the potential for future damage in the hazard-susceptible areas of the shoreline. The Select Committee of the Legislature voiced a similar recommendation in regard to these hazard lands in its 1953 report.

We recommend that the Minister of Natural Resources require the Conservation Authorities to enact regulations under Section 28 of the Act. It is the intent and recommendation of your Committee that this be done along the entire Great Lakes shoreline. These regulations have been effective in preventing the creation of many new problems by regulating development in the riverine environment, and will complement land use controls and by-laws in place by their member municipalities.

This amendment will also enable Conservation Authorities to initiate much needed damage prevention studies (e.g. flood mapping, erosion rates), and to acquire shoreline hazard lands, if such are required to prevent the formation of new problems. The latter, non-structural activities are seen as some of the possible options to be considered in major shoreline projects (Section 3.5.1), and are consistent with both Environment Canada policies and comments by the Federal Environment Minister.

Other preventive activities by the Conservation Authorities include:

- shoreline emergency planning

  This category applies equally well to the Ministry of Natural Resources and the municipalities, but it is grouped here with the activities of the Conservation Authorities - the agency which will work most closely with municipalities in shoreline planning. We also believe that the Ministry of Municipal Affairs should encourage all shoreline municipalities to incorporate shoreline emergency planning under the Emergency Plans Act. The Conservation Authorities should assist their municipalities in this role of damage mitigation, by helping them prepare adequate plans based on credible storm scenarios.

- flood warning

  The Conservation Authorities' role is to be a conduit which will quickly provide gale and high lake level advisories/warnings to municipalities in their areas. This task is now undertaken by the Flood Forecast Centre in Toronto, but needs to be expanded so that the Conservation Authorities can provide more site-specific information to the municipalities in their littoral cells (Section 3.6).

- review of shore protection works

This review process also has a prevention component in that all shoreline works must be reviewed to ensure consideration of the potential effects of a work on neighbouring shoreline areas.

3.4.4 Ministry of Natural Resources Legislation

A similar mechanism for fill and construction regulation appears necessary for shoreline areas where there are no Conservation Authorities. Indeed,

such a mechanism might also alleviate current problems experienced by the Ministry of Natural Resources in applying the Public Lands Act and the Lakes and Rivers Improvement Act in these areas. We have, therefore, recommended that appropriate legislation administered by the Ministry of Natural Resources be amended to provide the Ministry of Natural Resources with the same powers as a Conservation Authority in regulating fill and construction in flood/erosion susceptible areas.

On a larger scale, the Ministry of Natural Resources will be contributing to damage prevention by:

- preparing the overall Plan for shoreline management.

  This Plan will identify significant hazard reaches where preventive actions, such as the raising and/or relocation of structures, are the most viable strategy deserving funding.

- developing regulatory flood and erosion standards so that shoreline hazard lands can be identified.

- supporting research into topics such as shoreline erosion and protection works, to ensure that up-to-date data are available to the Conservation Authorities and municipalities to assist in their planning.

3.4.5 Canada-Ontario Flood Damage Reduction Program

This program has been of considerable value to both governments and municipalities in providing funds for mapping and studies aimed at clearly identifying flood and erosion hazard areas. Once these areas are identified, municipalities and planning boards can act to include them in their planning documents, and the Conservation Authorities can enact fill and construction regulations - all to effect damage prevention over the long-term.

We strongly support this program. As mentioned earlier, we trust that the Province will discuss with the Federal Government a substantially greater commitment to shoreline matters in the continued operation of the program. Some of the most useful information relating to damage prevention on the shoreline was derived from work related to developing the Canada-Ontario Coastal Zone Atlas (1975). This work is now dated but it will serve as a foundation for launching many local programs and the Ministry of Natural Resources Shoreline Management Plan.

We also recognize that there is an avenue within the current program for Federal funding of remedial works projects. Although these projects are discussed in detail in the next section of this report, the possibility for rapid action on both preventive and protective measures should be discussed by the Ministry when conferring with the Federal Government about this Program.

Overall, it is the Committee's opinion that the current absence of a concerted effort in preventing long-term problems can be quickly rectified. There is a formidable array of legislation which has been used to effect the same goals in riverine flood plains, and this same legislation (with amendments) can be used to advantage on the shore. We understand that the Province's current approach has been most successful in damage prevention in the riverine environment, and it is regretable that similar actions were not taken earlier for the shoreline.

3.5 Protection

In addition to the Conservation Authorities' role in damage prevention, it is recommended that the Authorities be the single "window" for all individually initiated applications requesting Provincial (or Federal) assistance and approval for shoreline protection works. As well as being the "window" for shore protection applications, the Authorities will also review applications, provide free technical assistance, provide technical approval of

shore protection works and advise in shoreline disputes. Moreover, they would be the agency which would initiate larger scale projects suggested by either the member municipalities, or the province, or by studies conducted by the Authority.

3.5.1 Major Projects

Two tiers of projects are envisaged. The first tier would be composed of relatively large scale projects initiated by the Conservation Authority with the support of the member municipalities. The scope of these projects is anticipated to be well beyond the financial capabilities of individual shorefront owners, and these projects may involve staged or complete projects providing engineered protection along significant sections of shoreline. The ongoing Metropolitan Toronto and Region Conservation Authority projects along the face of the Scarborough Bluffs are appropriate examples, as could be protective works for the beach nourishment project in Goderich on Lake Huron.

Many of these projects would entail the construction of protection works, and it is considered appropriate to fund them in an identical way as are ongoing capital works programs for flood and erosion reduction in the riverine environment. That is, 55% provincial funding (plus supplementary grants where applicable) and 45% (or less) local funding by the benefitting municipalities and/or shorefront owners.

It is important that these major projects must also include consideration of relocation, acquisition, and other non-structural means of flood/erosion damage reduction as well as the more common or innovative structural means of damage prevention. As a result, it is conceivable that studies leading to the advancement of some major projects may find that the preferred solution is partially, or perhaps entirely, composed of non-structural elements.

It is your Committee's understanding that these, and similar non-structural works are strongly supported by the Federal Government. Hence, we urge the

Province to approach the Federal Government to solicit their support for this initial tier of projects, and to work with them to negotiate an agreement which would distribute costs equitably between the Province and the Federal Government, reducing but not excluding the municipal and/or owner's contributions.

In addition, it is noteworthy that the Federal Governments of Canada and the United States have jurisdiction over the level of the water in the Great Lakes. Since there will be heavy demands for structural solutions to combat high water levels (because of on-going record-setting levels in the lakes), your Committee also recommends that the Minister discuss with the Federal Government its contribution to these works where they are categorized as being critical.

It is also recognized that there are many such projects which now appear desirable and urgent because of the high water level situation on the Great Lakes. These cannot be compared immediately and cannot all be completed at once, given that there are other valid demands on limited provincial funds. As a result, it will be important to rank these competing shoreline projects within a consistent framework so that the merits of all can be weighed and priorities assigned to each project. There would be no time limit on the duration of this program, so that major projects not undertaken in a particular year can be ranked again for inclusion in subsequent years.

Regarding priorities, it is your Committee's view that the comparative ranking scheme should include consideration of or preference for those projects which will enhance access to the lakes by the general public. It is your Committee's experience, as a result of our shoreline reconnaissance, that significant portions of the lakefront resource are isolated from public access. Consequently, the relatively high level of public expenditure in this first tier of projects should benefit the inland public as well as the immediate shorefront owners and directly benefitting municipalities. Thus, the generally benefitting municipalities in the interior of each Conserva-

tion Authority would be expected to contribute nominally to projects which encourage public access to the shore.

As a corollary, these major projects involving public expenditure should also be designed to a high level of protection, giving consideration to the 100 year lake level and erosion limits. The long-term maintenance of these works should also be supported by granting arrangements identical to the current riverine situation.

3.5.2 Individually-Initiated Projects

The second tier of projects to be administered by the Conservation Authorities would be those initiated by either permanent or seasonal shoreline residents.

Shoreline residents now appear to be receiving conflicting information from a myriad of agencies, and may be under-designing or over-designing shore protection at significant cost to themselves - with subsidized loans from the Province often going to inappropriate structures. There is an opportunity for them to obtain free technical advice, and although this program has been beneficial, it seems not to have been widely used, is poorly advertised, and lacks consistency throughout the Province. Quite aside from the physical nature of the protection being put in place, important checks and reviews (under the Public Lands Act for example) are being circumvented for a variety of reasons.

As indicated earlier, the Conservation Authorities will have approval and inspection responsibility for shore protection works and will be requiring all owners to apply to their Conservation Authority before undertaking any shore protection works. Free advice would be given and applications would be funnelled quickly through to various shoreline agencies for approval.

In order to receive subsidized loans through the Shoreline Property Assistance Act, for example, or to receive proposed grants, it is considered

desirable to ensure that provincial funds are being appropriately used and equitably applied to all who may be affected by flooding or erosion along the shoreline. Hence, with this proposal the Committee feels it will be a major step forward, and a benefit to all parties, for the Conservation Authority to review shoreline protection designs. This will ensure that designs are brought up to specified standards of uniformity, and conform with proposed long-term plans for each stretch of shoreline or littoral cell within the lakes. As noted earlier, municipalities would share in this role by reviewing proposed activities related to structural repairs, elevation, relocation, and other items in their mandate. They would also inspect building construction and completed structures to ensure that the approved design had been put in place according to specifications. Provision of assistance for building repairs would be conditional on the owner taking steps to minimize the risk of future damage.

It is envisaged that this process of improved designs, along with requirements to follow more consistent long-term plans for the shoreline (as a condition of receiving public assistance) will benefit all owners. It will provide solutions which are more secure, longer lasting and more cost beneficial. At the same time, however, because of improved design standards, many landowners may be asked to spend more money than they had initially considered. Hence, incentives are considered appropriate for this program.

Basic Grants

A new incentive in the form of a 10% provincial grant is proposed by your Committee. This grant would apply to all approved works initiated by the individual or municipality and would have a ceiling of $2,000 per property. This grant is considered justifiable because of the need to counterbalance higher standards of construction expected under the Conservation Authority review and permitting approach. Funds will return indirectly to the Province through a more stable shoreline tax base, and through reduced municipal and provincial expenditures on other subsidies and emergency response.

Special Incentive Grants

An additional 10% provincial grant is also proposed for areas designated by the Province as locations where a non-structural approach is most desirable to prevent flood and erosion damage. These areas may be so designated because of extreme hazards or other unique conditions, which are better addressed by actions other than traditional protective approaches. This special incentive grant would be exclusively allocated to individuals or municipalities for preventive works, such as relocation and/or raising of structures or upgrading of septic systems, to the regulatory level of protection. These special incentive grants would be distributed by each Conservation Authority on a priority basis determined by the basic framework of the long-term plan for the Province's shoreline.

Your Committee believes from our understanding of Federal policy that this second, special incentive program for preventive action lends itself particularly well to Federal involvement. The emphasis of this latter program is on damage prevention, and your Committee recommends that the Province approach the Federal Government to discuss their involvement in augmenting this grant with a matching allocation, extending over a period of at least 5 years. Such a level of combined Federal/Provincial commitment would accelerate both parties' goals for a reduction in long-term damage susceptibility, and intensify the focus of prevention to the most significant hazard-prone reaches along the shore.

3.5.3 The Shoreline Property Assistance Act

It is also suggested by the Committee that individuals who wish to obtain financial assistance through the Shoreline Property Assistance Act would apply for such funding through the Conservation Authority.

Loans

For individuals who wish to apply, a subsidized loan (currently at 8%) is available for the balance of the project cost. This loan applies to protective works and repairs to damaged structures, or for raising or relocating structures as a result of damage (or to prevent damage). The maximum loan is now the lesser of 75% of the total cost or $20,000. Your Committee recommends that this total cost figure be raised to $40,000, but that the total loans per property not exceed $500 per meter of shoreline.

The public has informed us that the current program does not guarantee provision of a loan, and that there have been delays in processing loan applications. We recommend that loan-approvals be guaranteed following technical approval of proposed works, and that payment be expedited.

Loan Defaults

Although your Committee has been told that there have not been any defaults since inception of the Shoreline Property Assistance Act program in 1973, we were concerned about this possibility under the uncertain climate of fluctuating lake levels. Countering this is the expectation that individual projects funded under the prescribed shoreline management plan will be better engineered, inspected and put in place in locations where they will be effective over the long term - all contributing to minimizing defaults.

In the event of a default on the loan and subsequent abandonment of the property, title would revert to the municipality. However, the Committee agreed that the municipality should not bear the brunt of the default/unpaid balance of the loan. Some of the options the Committee discussed were:

- the municipality bearing none of the cost of the loan default
- the province assuming all costs of the unpaid balance of the loan

- the Conservation Authority covering this balance through their administration budget (50% Provincial grant plus supplementaries)

- the default being distributed between Federal, Provincial and Municipal governments, since each have a degree of responsibility

- the Municipality and the Conservation Authority sharing the unpaid balance of any loan default, and that distribution of default costs be decided on a site-by-site basis depending on the final disposition of the property

It is the concensus of your Committee that the Province assume all costs of the unpaid balance of the loan.

3.5.4 Anomalous Properties

Your Committee has observed and heard in public meetings that certain individuals and some municipalities and government agencies have not joined with adjacent owners in following a consistent approach to managing their shorefronts. These owners have been referred to as "weak links" or "the holes-in-the-dyke" by those who advocate contiguous shore protection. Alternatively, they have been called the "perceptive ones" by those who recognize that inexpensive attempts at shore protection are unwise and inappropriate for sections of the shoreline where it may be best to raise a structure or relocate it at a different setback.

The comprehensive Shoreline Management Plan developed by the Ministry of Natural Resources for the Great Lakes will make it possible to determine which action is appropriate for each stretch of shoreline. In certain areas, contiguous protection will be deemed appropriate, and in other reaches non-structural options will be desired. Hence, within each shoreline reach it will be possible for all owners to know what form of damage prevention is most suitable and to determine if the actions (or inactions) of an adjacent owner are justified.

If adjacent owners feel that a neighbouring owner is unjustified, the Committee is of the opinion that these owners should be provided with a mechanism to obligate the anomalous resident to fulfill his or her responsibilities of shoreline ownership. To date, there is no such mechanism, but clearly one must be devised.

We are aware of three pieces of legislation which address somewhat similar problems (the Conservation Authorities Act, the Local Improvements Act, and the Drainage Act). However, none appears to be immediately applicable to "closing the dyke" in the shoreline case. An amendment to one, or a combination of the best features of all, or a new piece of legislation may be required. Whatever the decided approach, we recommend that the province:

- provide a mechanism for addressing the problem of anomolous properties along the shoreline

- include provisions in the procedure regarding maintenance by the owner (if shore protection works are required)

- fortify this mechanism with safeguards and provide an appeal process (to be established by the Minister) to minimize potential abuses.

It is noteworthy that the proposed Shoreline Management Plan (and more detailed plans drawn up by the Conservation Authorities) will provide pertinent data for determining the validity of claims from neighbouring owners.

We have also heard that there may be many reasons why an owner may initially be unwilling to proceed in concert with his neighbours. Principal among these may be cost, which we have heard in public meetings is a major factor in the minds of those on limited or fixed incomes. To rectify this encumbrance, the Committee recommends that the Province consider amendments to the Ontario Home Renewal Program (OHRP) to include the same elements which

are now combined in the Shoreline Property Assistance Act (e.g. protection, raising of structures). In the same vein, the Committee requests the Province to approach the Federal Government to discuss inclusion of this package in the Federal Residential Rehabilitation Assistance Program.

3.6 Emergency Measures

Although implementation of the above described preventive and protective measures will greatly reduce problems, they will not be completely eliminated. Hence, the third principal component in an overall framework for shoreline management is the provision of government assistance to combat flood and erosion problems in emergency situations, both during and immediately after a major event.

Each individual and public agency with a shoreline interest is seen as having a responsibility in responding to flood and erosion emergencies. Initially, the individual landowner should be prepared to act as the first line of defence in responding to damage caused by high lake levels and in preparing for that eventuality.

However, it has become clear to your Committee that there has been poor communication in conveying an understanding of the limitations of lake regulation, and of the potential emergency situations which may now arise with even moderate storms over the Great Lakes. Your Committee therefore recommends that the Province undertake a communication strategy which would improve this condition and be an ongoing benefit to current and potential shoreline owners. Because of the recognized Federal responsibility for water level regulation, it is also the opinion of your Committee that the Federal Government should combine with the Province to augment and share the cost of this program.

The communication strategy could begin with information flyers to shoreline owners and continue with regular newspaper supplements. Most important,

however, is that this strategy must also ensure a continued, co-ordinated effort on the part of the Atmospheric Environment Service and the Ministry of Natural Resources Forecasting Centre. We understand that information on gale warnings, lake levels, set-up and wave heights are now passed on to the Conservation Authorities, but that more specific details are needed about expected local conditions in each littoral cell. Associated with this is the fact that it may not always be possible to generate or transmit this local data under some conditions.

Hence, we recommend that the Ministry of Natural Resources give consideration to providing each Conservation Authority with a reference guide of lake data pertaining to their littoral cell. This guide could contain charts showing set-up, wave heights or runup under various storm conditions, for example, and would be a definite asset for reference when establishing emergency plans with each municipality.

The municipality also has a role in responding to and preparing for potential emergencies, and assistance is usually required when a flood or erosion problem exceeds the individual's ability to adequately respond. Under the Emergency Plans Act, municipalities may prepare emergency plans covering the procedures for responding to a shoreline emergency and providing necessary services resulting from flood and erosion.

It appeared from municipal input during public meetings that not all shoreline municipalities have prepared such plans for shoreline emergencies. In view of the future potential for such conditions, your Committee recommends that the Ministry of Municipal Affairs approach all shoreline municipalities to require them to incorporate such emergency situations in completing their emergency response planning. Consideration should also be given to having the municipalities provide more information to shoreline residents about this program, to assist them in planning their individual response to an emergency. We believe that rate-payer groups, shoreline coalitions, and other cottager associations should be approached to elicit their help in providing this information to the shoreline public.

Assistance from the Province may be requested by the municipalities when conditions during or after an event are beyond their realm of effective response. Under the Ontario Disaster Relief Assistance Program, the Province can provide funds to assist private landowners when Cabinet declares a shoreline to be a "disaster area". In addition, municipalities can apply to the Ministry of Municipal Affairs for assistance in the form of unconditional grants when the cost relating to unanticipated emergency situations are too much of a burden to the local tax base.

The Committee recommends that the Province continue to provide resources during emergency events. Current levels of involvement in the Disaster Relief Assistance Program are also viewed as appropriate. Your Committee also recommends that the Province, through the Ministry of Municipal Affairs, continue to provide unconditional grants to those municipalities incurring unanticipated costs following shoreline emergency situations. Moreover, we recommend that the Minister of Municipal Affairs examine the program as it applies to municipalities facing multiple emergency expenditures as a result of shoreline flooding or erosion.

The Province (Ministry of Natural Resources) is also currently involved in a special contingency programme providing free sandbags to municipalities for flood prevention during this period of high water levels on the Great Lakes. This quasi-emergency program has evidently benefitted many shoreline residents, by providing protection while more permanent works are being put in place. However, we have heard that the distribution and quality of sandbags has been inconsistent from municipality to municipality, some sandbags are being improperly deployed on the site, and some occasional abuse of this program has come to our attention (e.g. bags being used as garbage containers or being stockpiled).

The Committee supports this program, but recommends that your Ministries jointly establish a consistent set of guidelines for the municipalities, to assist them in their distribution and deployment of the sandbags. A nominal

fee for the sandbags should now be considered, and it may be desirable for the Conservation Authorities or Ministry to provide some technical advice to shoreline owners on the deployment of these sandbags. At the same time, the Authorities would have an opportunity to explain the advantages of more permanent actions, and the opportunities for funding under the Shoreline Property Assistance Act.

Lastly, when flood and erosion damage is particularly extensive, the Province may in turn request financial assistance from the Federal Government. However, before the Province is qualified to receive this funding, eligible damages must exceed $1 per capita of the provincial population. As yet, Ontario has never been eligible to make a request to the Federal Government.

4.0 CONCLUSIONS

We have concluded from our shoreline management review, that the current absence of a concerted effort in preventing long-term problems and addressing existing ones, can be quickly rectified. The solution will require the involvement of the Federal and Provincial Governments, municipalities, Conservation Authorities and other agencies, and the individual shoreline residents.

Firstly, we have concluded that there is a need for a strong statement of Provincial policy, to heighten awareness of the diverse and valuable resource which the shoreline represents, and to emphasize Provincial resolve to include shoreline management in land use planning practices.

We also believe that part of the Provincial commitment to shoreline management must include a continuation of public input. A Shoreline Management Council, reporting public opinion and recommendations on the shoreline management initiative, is considered by your Committee to be the preferred means of satisfying many existing and future concerns.

Your Committee has also concluded that there is a need for a consistent, long-term plan of action for managing the shoreline. The Shoreline Management Plan will be the basis for nearly all preventive and protective activity along the shoreline, and will guide all parties in the implementation of shoreline management along the Great Lakes of Ontario.

We have also seen that there is a formidable array of legislation which has been used to effect flood and erosion damage reduction, and minimize the potential for loss of life, in riverine flood plains. This same legislation, with amendments, can and must be used to address hazard land conditions along the shore. We noted previously in our report that it is regrettable that shoreline land use planning (identified by the Select Committee of the Legislature in 1953), and regulatory policies, were not put in place at a much earlier date.

We have also concluded from our reconnaissance of the shoreline, that there are certain areas on each of the Great Lakes which will require shore protection. As it is beyond the collective ability of all agencies to provide protection for the entire shoreline (and indeed it is undesirable in many instances), we believe that protection must be put in place in a well-planned and well-conceived fashion. The Shoreline Management Plan will provide the necessary direction and procedures.

Some protective measures will require government funding, and we have concluded that there are valid reasons for the Federal Government to share with the Province in the cost of these works. In areas where there is a need for government involvement, we believe that shore protection can be instituted in a progressive manner, by means of a priority ranking scheme. Shoreline protection cannot all be done at once, but there is a need for a beginning. Other protective work will be done by the individual shoreline landowner, and we have concluded that these people must also be helped with design guidance and the provision of Provincial funding.

Although implementation of preventive and protective measures on the shoreline will greatly reduce the potential for shoreline problems, there is still a need to plan for emergency situations. We have concluded that emergency planning must be undertaken by shoreline municipalities, and can involve local shoreline groups in the dissemination of information.

Lastly, but perhaps most importantly, there is a need for all levels of government, including the municipalities, to provide shoreline residents with more and better information about shoreline processes and the resulting problems that can arise. Many of the problems about which we saw and heard could have been prevented by greater public awareness, and many future problems will be forestalled by a concerted effort at improved information distribution.

appendices

APPENDIX "A"

LETTER TO THE MINISTER OF NATURAL RESOURCES

Shoreline
Management
Review Committee

Chairman

Room 6501
Whitney Block
Queen's Park
Toronto, Ontario
M7A 1W3
416/965-5676

August 19, 1986.

The Honourable Vincent G. Kerrio
Minister of Natural
Resources and Energy
6th Floor, Whitney Block
Toronto, Ontario
M7A 1W3

Dear Vince:

The Shoreline Management Review Committee has now completed a series of 20 public meetings, which were organized to obtain opinions and suggestions on options for managing the shorelines of the Great Lakes in Ontario. These meetings were of considerable value to the Committee and we look forward to addressing public and other concerns in our report to you in October.

The issue of shoreline land use changes presented itself on many occasions, and particularly in public comment on previous IJC Reference studies relating to water level regulation. In summary, the Committee and many of the public presentations identified that the data base pertaining to shoreline land use and damages may have been inadequate then and has significantly changed since initiation of earlier IJC studies. There is a genuine concern that the past data base no longer gives a realistic appraisal of the current value of land and structures at risk and the degree of hazard susceptibility.

The Committee has been informed that a new IJC Reference will soon be initiated and will again be employing land use data in evaluating measures to mitigate the problems created by fluctuating water levels.

Before this Reference gets well underway, the Committee respectfully requests that your office explore with the Federal Government the possibility of including collection and utilization of a comprehensive update of the shoreline data base within the Reference.

The Committee also recognizes that the time frame for the Reference study is short and that such a data collection program must not delay completion of the Reference. However, as this information will also benefit Ontario's purpose in terms of shoreline management and protection assistance programs, it may well be advantageous for the Ontario Government to take this opportunity to share with the Federal Government in this part of the Reference.

I respectfully submit this proposal to you on behalf of the Shoreline Management Review Committee and would welcome a prompt response. The Committee will be available for further discussion should you think it necessary.

Sincerely,

Jim McGuigan, M.P.P.
Chairman,
Shoreline Management
Review Committee

JM/deb

APPENDIX "B"

LISTING OF SUBMISSIONS TO THE COMMITTEE

SHORELINE MANAGEMENT REVIEW COMMITTEE

LISTING OF SUBMISSIONS

Kingston - June 18, 1986

Name and Affiliation or Address of Presenters

Bill Warwick	Cataraqui Region Conservation Authority*
Ron Smith	Portsmouth Olympic Harbour
David Schlesinger	MNR - Napanee District
Wes Mound	Lower Trent Region Conservation Authority
Terry Murphy	Prince Edward Region Conservation Authority
Bill Kamphuis	Queen's University

Collingwood - June 27, 1986

John Jeffs	Craigleith Community Association and Federation of Ontario Cottagers
Howard Lee	Woodlands Beach
Clive Brooken	Wasaga Beach
Helen Belanger	Tiny Township
Barry Beer	Wasaga Beach
Bill Neal	Collingwood*
L. Lanty	Collingwood*
Bruce Ryding	Township of Collingwood*
F. Burford (for J. King)	Collingwood
D. Storey	Collingwood
T. Stanghieri	Wasaga Beach
Two unidentified	Collingwood area

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* denotes written presentation

Thunder Bay - July 3, 1986

Bob Hartley	Chairman, Lakehead Region Cons. Auth.*
Dawn Eccles	Councillor, Shuniah Township*
Joseph Caron	Reeve, Shuniah Township*
Victor Balcytis	Clover Beach Ltd., Cottager Association
George Batchelder	Thunder Bay
Del Rondo	Black Bay
Don Kells	Thunder Bay area
Mr. Clark	Thunder Bay area
Andy Melville	East Green Bay
Ernie Epp	M.P.P., Thunder Bay-Nipigon
Two unidentified	uncertain location

Sault Ste. Marie - July 4, 1986

John Fleming	S.S. Marie, Director of SSM Development Corp.
John Nelson	Point aux Pins, EMO Coordinator, Sault Ste. Marie
Ralph Yanni	S.S. Marie Region Conservation Authority*
Tom Buckal	Batchewana Bay
Tom Vandervall	Searchmont
Petty Saarinen	Batchewana Bay
Bill Archer	St. Joseph Island
Doug Hurley	Batchewana Bay

Sarnia - July 9, 1986

Ray Whitnall	Reeve, Sarnia Township*
Duncan McCracken	President, St. Clair River and Lake Huron Coalition*
Bill Pierce	Stag Island
Gwen Cunningham	Stag Island*
Mr. Smith	Stag Island

Bob Elder	Stag Island*
John Brenders	Maple Lead Mills Ltd., Sarnia
Robert Boldt	Lakeshore Road
Stephen Evans	Lambton County Planning Department
Rob Hughes	St. Clair Region Conservation Authority
Liard Nixon	Lakeshore Road, Bright's Grove*
John Rozema	Lakeshore Road, Bright's Grove
William Robertson	Errol/Plympton Township
Dr. Rodger Griffiths	Sarnia Township*
James Handyside	Plympton Township

Goderich - July 10, 1986

Les Tervit	Maitland Valley Conservation Authority*
Alex Scott	Ausable-Bayfield Conservation Authority
Eileen Palmer	Mayor, Goderich*
Glenn Pridham	Grand Bend
Russel Kernighan	Reeve, Colborne Township
Reg Fielding	Huron Sands, Kintail
Doug Brown	Cottager, Kintail area*
Pat Bowman	Wildwood Property Owners Assoc., Bayfield*
Mike Cortese	Matthew Johnson Beach Assoc., Goderich Township
Frank Gardner	Port Albert Ratepayers Association*
Dr. Cieslar	Goderich
Jack Lewis	Huron Sands, Kintail
Tom McClung	South Bayfield
Marjory Milson	St. Josephs, Hay Township
Geoffrey Walker	Kintail
Lewis Coffin	Port Franks
Jean Croft	Goderich
Tony Oliver	Sunset Lane Cottage Association
Don Fenton	Deputy Reeve, Saugeen Township
Judy Caesar	Goderich

Donna Jones	Port Franks
Tom Wilcox	Port Franks*
Joan Ducharme	Township of Hay*

Windsor - July 17, 1986

Fred Cada	Reeve, St. Clair Beach*
Marvin Ewing	Past President, East Shore Coalition*
Dr. Norm Becker	Ouellette Avenue, Windsor*
Margot Cole	Lasalle, Ontario
Harold Downs	Mayor, Tecumseh
Francis Leduk	Thames River area
Winda Bank	Maidstone
Mrs. Dotsert	Tecumseh
Marguerite Quinby	Lakeshore Drive
Rick Ruscomb	Councillor Rochester Township
Paul McMillan	Belle River, President, East Shore Coalition
John Nash	Amberstburg, Lake Erie*
Vince Mariotle	Reeve, Township of Sandwich West*
Mike Kelly	Lake St. Clair Coalition
Wilf Fortowsky	Amherstburg
Paul McMillan, Sr.	Visitor from overseas
Mrs. Burborak	Unknown location
Two unidentified	Unknown location

Belle River - July 18, 1986

Phil Hale	Essex Region Conservation Authority*
Stanley Luhowy	Belle River
Bernard Roy	Lakeshore Park
Olivia Steel	Unknown location
Marv Ewing	Past President, East Shore Coalition

Rick Ruscomb	Councillor, Tochester Township
One unidentified	Unknown location
Pat Hayes	M.P.P., Essex North
Tom Bain	Reeve, Rochester Township
Paul Courey	Deputy Reeve, Tilbury North*
D. McGonigal	Rochester Township
John Ashton	Emeryville*
Russel Renand	Rochester Township
Robert (?)	American visitor
John Nash	President, Essex County Floodplains Association*
Paul McMillan	East Shore Coalition, Belle River
Four unidentified	Unknown location

Port Colborne - July 22, 1986

Ray Haggerty	M.P.P., Erie
Michael F. Walter	Chairman, Canadian Coalition of Great Lakes Residents
Stuart Edwards	Welland*
Jack Hickey	Vice Chairman, Niagara Peninsula Conservation Authority*
Carlo Micali	General Manager, TIVOLI miniature world, Vineland Station
Ron Wills	North Shore Coalition
Vivian Moggridge	St. Catharines*
Bill Yarr	Lowanks
Jerrie Everett	Lowbanks
John Knoxville	Noraine
City of Port Colborne	Port Colborne*
Pat Scholfield	Port Colborne
John Scholfield	Port Colborne
Dr. Joseph Pacsuta	North Shore Coalition*

Stan Pettit	Mayor, Township of Wainfleet*
Don Metzen	Lowbanks
Mr. Swanson	Albino Bay
John Groshee	Port Colborne
Don Ord	St. Catharines
Mrs. Thomas	Unknown location
Bob Blake	Dunnville
Charles Coutes	Thunder Bay
Jerry Grayway	Wainfleet Township
Eight unidentified	Unknown location

Port Dover - July 23, 1986

Sharon Hazen	North Shore Coalition*
Joe Menegon	North Shore Coalition
James Bauer	Chairman, Grand River Conservation Authority*
Ted Whitworth	Port Rowan
Ken Winning	Sandy Bay, Dunnville area
R.G. Moore, P.Eng.	County of Elgin*
Mrs. R. Macdonald	Port Dover, Elmerest Association Survey
Madeline Van Paemel	Dunnville
Dennis Lewis	Sandy Bay, Dunnville area
Elwood Varty	Clerk, Village of Port Burwell
Keith Richardson	Haldiman-Norfolk Region
Stann Mott	Port Dover/Waterford Cottager Association
Mike Ramsey	Town of Dunnville
James Oliver	Long Point Region Conservation Authority*
Bob Easton	Port Ryerse*
W.C. Tiessen	Port Dover
Edith Fuller	Mayor, Town of Haldimand*
Don Way	Long Point
Sylvia Hutton	Peacock Point
Tony Slater	Nanticoke
Two unidentified	Unknown location

Port Rowan

Tom Miller	President, Turkey Point Property Owners Association*
John Schneider	Clear Creek
Ray Ferris, Jr.	Old Cut, Long Point*
Bevan Johnstone	Long Point
Dennis O'Grady	Catfish Creek Conservation Authority*
Bob Spietaels	Long Point Marina
C.A. Abbott	Mayor, Township of Norfolk
Harry Barritt	Long Point Historian
Russ Charlton	Port Bruce Ratepayers*
Bob Welsh	President, Long Point Ratepayers Association*
Dave Shepherd	Long Point Bird Observatory
Jim Abbey	UNESCO (Man and the Biosphere), Long Point Reserve
Darrin Rouse	Port Rowan Ambulance Service
Harry Christian	Long Point
Gord Kells	Long Point
Unidentified	Great Lakes navigator
Steven Mascott	Long Point
S. Mott/K. Linsday	Rita Park Cottagers Association*
Three unidentified	Unknown location

Wheatley - July 31, 1986

	Briarwood
Mr. Gifken	Oaksteads area
Ken Crewe	Wheatley area
Lloyd Gillet	Mercea Township
Ray Marintette	Treswell Drive
Jean Newstead	Leamington Post
Cindy Peace	U.S.A. seasonal resident
Mr. Fergusson	

John Perks	Wheatley area
Mr. Cowan	Reeve, Mercea Township
Jim Barlow	Point Pelee National Park
Marvin Ewing	East Shore Coalition*
Two unidentified	unknown location

Kingsville - July 31, 1986

Remo Mancini	M.P.P., Essex South
Mrs. Florence Hardy	Kingsville/Cedar Island*
Ron Domenna	Deputy Reeve, Gosfield South Township*
Marv Ewing	Kingsville
Mary Ann Morris	Kingsville
Brian Harrison	Pigeon Beach
Gunter Gablas	Cedar Beach
Frank Hope	Fagan Subdivision
Carl Fraser	Kingsville
Reg Cozen	Town of Amherstburg
Gary Kitchen	Kingsville; V.P., East Shore Coalition and President, Gosfield South Rate Payers Association*
Carl Gibb	Reeve, Malden Township
Bruce Horan	Leamington
John Nash	Amherstburg*
One unidentified	Unknown location

Blenheim - August 1, 1986

Bob Goulet	Reeve, Harwich Township*
Bob Harrison	St. Clair Parkway Commission, Sarnia*
Michael Down	Alymer Pt., Bruce Ratepayers*
Bob Graham	Village of Erie Beach*
Laverne Kelly	Reeve, Erieau*

Walker Lenson	W.J. Lenson & Assoc., London*
Jerry Campbell	Lower Thames Conservation Authority*
Tony Stranak	Warden, Kent County
John Smith	Deputy Reeve, Raleigh Township
Floyd Kersey	Shrewsbury-Raglan Assembly
John Trudgen	Clerk Treasurer, Township of Dover*
Dick Smith	Erie Beach

Toronto - August 7, 1986

Russ Powell	Association of Conservation Authorities of Ontario*
Larry Field	Metropolitan Toronto and Region Conservation Authority*
Tony O'Donahue	Toronto
Doug Martin	Lakefront Owners Association, New Toronto*
Iva Ashley	Lake Promenade, Toronto*
Bob List	Township of Georgian Bay, Port Severn
George Whale	Scarborough
C.L. Maurice	Clerk Administrator, Township of Tiny
E.C. Walton	Deputy Commissioner, City of Scarborough*
Paul Ashenhurst	Ancaster
H.E. Bidwell	Oakville
L. Sage	Hamilton, and Georgian Bay cottager
J. Love	Georgian Bay cottager
Rob Nairn	Keith Philpott Consulting Ltd., Thornhill*
Mrs. Crowe	Woodland Beach, Nottawasaga Bay
Hans Christmode	Toronto area
Mr. Crowe	Woodland Beach, Georgian Bay
Four unidentified	Unknown location

Additional Written Briefs* (Reviewed After Meeting Schedule)

Bryan Hall	General Manager, Kettle Creek Conservation Authority
Tom Prout	General Manager, Ausable Bayfield Conservation Authority
Jack Geary	Clerk-Treasurer, North Marysburgh Township
Glen Knox	Regional Municipality of Peel
M.J. Sheehan	Swan Wooster Ltd.
Andy Brandt	M.P.P., Sarnia
Mrs. Bertha Grant	Dunnville
Richard Tighe	Mayor, Township of Belle River
George Tapp	Featherstone Point
M.D. Perdu	Clerk-Treasurer, Township of Tilbury North
City Clerk	City of Windsor
The Doan's	Wainfleet
R.G. Stinson	Deputy Clerk, Town of Coburg
Brian Suter	Deputy Clerk, City of Oshawa
J.R. Skelton	Brantford
R.G. Stewart	Clerk, Town of Flamborough
G.A. Schnarr	General Manager, Credit Valley Conservation Authority
Mrs. G. Hulse	Schomberg
E.E. Collingwood	Town of Wasaga Beach
C.M. Jefferson	Acting Clerk-Treasurer, Town of Clinton
Peter Drake	Warren, Michigan
Ruth Bradshaw	Scarborough
Marvin Ewing	East Shore Coalition
Eric Grove	Hamilton
T.J. Smeek, Sr.	Bright's Grove
B. Denney	Metropolitan Toronto and Region Conservation Authority
G. Maurice	Administrator, Township of Tiny

B. Proudfoot	Perkinsfield
T. Derreck	City of St. Catharines
C.J. Wildman	M.P.P., Algoma
R. Judd	Norfolk Federation of Agriculture, Simcoe
J.A. Watson	Etobicoke (L. Huron cottager)
G. Marr	Dunnville
D. Stock	Secretary, Port Burwell Ratepayers Association
Kathleen Agar	Lakeshore Drive., Toronto
Peter Fowler	Vineland Station
Allan Gray	Camlachie
K. Richardson	Regional Chairman, Haldimand-Norfolk
Robert Campbell	Township of Nottawasaga
C.L. Conti	Central Lake Ontario Conservation Authority
John Nelson	E,O Coordinator, Sault Ste. Marie
B.W. Vanderbrug	Hamilton Region Conservation Authority
G.L. Boyd	Environmental Scientist, Burlington
Dr. R. Davidson-Arnott	Geographer, University of Guelph
Dr. J.G. Nelson	Department of Geography, University of Waterloo
H.T. Kirk	City Clerk, City of Thunder Bay
Ms M. Rogers	Acting City Clerk, City of Kingston
Mr. George Darnley	Clerk-Treasurer, Township of Tilbury East
Mr. B.M. Bremner	Commissioner of Public Works, City of Toronto
George Graham	Clerk-Administrator, Township of Brock
Brian Allaert	Dresden
Travis Secord	Deputy Planner, Town of Lincoln
W. Donald Cousins	Georgian Bay cottager (M.P.P., York Centre)
Gerald E. Vaughan	Dunnville
Dennis Rogerson	Township of Delhi
Mike Johnston	Christie Beach Cottage Association, Georgian Bay
City Clerk	City of Windsor
Keith Philpott	K. Philpott Consulting Ltd.
Ron Mills	City Clerk, County of Simcoe
Peter Kalinen	Toronto

William Flore	Long Beach Private Property Owners Assoc.
W. Guest	St. Thomas, Ontario
A. Drouillard	Clerk, Township of Maidstone
Carol McKenzie	Clerk, Township of Bosanquet
R.H. Peever	Harbour Lights Developments Ltd, Bayfield
Chris van Oord	HBG Engineering, Netherlands
R.F. Cloutier	City Clerk, City of Etobicoke